

M E M O I R S
OF THE
ROYAL ACADEMY
OF
S U R G E R Y
At P A R I S:

CONTAINING

A great Variety of CASES

In the chief Branches of the ART,

Many of them

Very surprizing and uncommon.

Translated from the ORIGINAL dedicated to the
FRENCH King.

VOLUME II.

L O N D O N :

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CONTENTS to Vol. II.

MEMOIR XII. O N abscesses in the fundament	257
Reasons for opening the intestine	259
Remarkable cure by cutting a new anus, and its mechanism	247-63
Description of the <i>levator ani</i>	262
MEMOIR XIII. Of stones encysted in, and adherent to the bladder	264
History of several stones retain'd in cellules formed in the membranes of the bladder	<i>ib.</i>
Observation on encysted stones	267
A stone included in a cavity at the superior part of the bladder near the os pubis	<i>ib.</i>
A bony cystis in the bladder, full of a stonelike substance	268
A stone encysted, and cover'd with a membrane	269
Bags of purulent matter in the bladder	270
Cellules in the bladder — an encysted stone in the kidney — stones embarrassed in fungous substances, and others retain'd in cellules	271
Of the beginning of cellules in the bladder	272
Authors quoted on encysted stones	273-5
Operations for extracting encysted stones	274
History of an encysted stone extracted	276-81
A stone extracted by means of injections	284
An useful remark	284
A mortal hemorrhage succeeding the extravasation of a stone from a cellule	288
A stone found in a membranous sack that proved fatal	291-2
A stone enchased in all the membranes of the bladder	293
MEMOIR XIV. On obstacles to the natural ejaculation of the semen	295
A defect of ejaculation from a disorder of the expulsive vessels	<i>ib.</i>
Requisites for due ejaculation	298
A fault of ejaculation from tumors in the <i>corpora</i>	<i>ra</i>

CONTENTS to Vol. II.

<i>ra cavernosa</i>	299
Cases relating to the same	299-305
MEMOIR XV. On the foregoing subject	306
Fault of ejaculation from a shrivelling and contraction of the urethra	<i>ib.</i> 307
Cure of a patient labouring under the said disorder	307-11
A defect of ejaculation attended with a retention of urine	311
Contraction of the urethra cured by wax candles	312
MEMOIR XVI. Of a reversed eyelid	313
History of a remarkable case	313-16
MEMOIR XVII. On extraneous bodies retained in the oesophagus	317
Case I. Of such as may be depressed into the stomach	318
Instances to that purpose	318-19
Suffocation from a retention	320-2
Extraneous bodies swallowed, and evacuated by stool	322-6
Means for depressing such bodies into the stomach	327-9
Remarks on Case I.	329-36
Bodies retain'd in the stomach with mortal effects	333
Case II. Of bodies retain'd in the oesophagus, which ought to be extracted	336
Remarkable examples	337 & seq.
Means for retracting extraneous bodies	347
1. By the fingers and pincers	348
Instances of the same	348-50
2. By means of hooks	350
Examples	350-3
Several kinds of hooks, with their uses	353-6
3. By use of the sponge	358
Remarks	360-4
A cartilaginous oesophagus that furnish'd the patient	

CONTENTS to VOL. II.

tient	364
Several instruments adapted to the sponge	365-6
New instrument by M. <i>Petit</i>	367
Remarks on its use, and on that of <i>Hildanus</i>	367-8
4. By leeks, wax candles, blows on the back, &c.	368-9
5. By exciting vomiting, a sternutation, cough	369-73
Remarkable cases	<i>ib.</i>
Case III. Bodies that should be extracted, but oblig'd to be depress'd	373
Extraneous bodies swallowed without bad effects	374
Remarkable example	377-83
Extraneous bodies discharged by the urinary passage	383-6
Glass, crystal, diamonds, &c. swallowed, not mortal	386-93
Marvellous a stumbling block to the learned as well as ignorant	392
A fork discharged by the anus, after 15 months swallowing	395
Bodies plung'd into the stomach by the mallet	396
Other instruments used by <i>Albucasis</i> , <i>Verduc</i> , <i>Willis</i> , <i>Heister</i> , and <i>Quesnay</i>	398
A bone depressed by dry pieces of sponge	399
Remark	400
Bones extracted by the leek and wax candle	401
Remarks on their use	402
Of the <i>provendur</i> , a besom for cleansing the stomach	<i>ib.</i>
Cautions against too frequent attempts to dislodge bodies retain'd in the oesophagus	405
Two fatal instances	406-8
Of mucilaginous, relaxing remedies, and cataplasms	409
Of injections, gargarisms and lochoch	410
A mysterious manner of dislodging bodies	<i>ib.</i>
Of	

CONTENTS to VOL. II.

Of vesicatories	412
Of methods for discharging extraneous bodies depressed into the stomach	413
Reflexion on the use of acid, mineral and vegetable spirits for that purpose	416
Of extracting bodies stopt at the anus	417
Remarkable histories	417-234
<i>Case IV.</i> Extraneous bodies which can neither be extracted, nor discharged by the natural passages	423
Bodies force a passage	<i>ib.</i>
Form abscesses	425
Needles and pins pass through the flesh, without suppuration	426
Extracted by incision	427-9
Pins found in different parts	430
A blade of grass extracted from an abscess below the nipple	433-6
Other instances	436
Extraneous bodies stopt in the stomach, and discharged from external abscesses	437
Knives, &c. thus discharged	439-50
Extraneous bodies stopping at the fundament, and occasioning abscesses in that part	450
Remarkable cases	440-5
Extraneous bodies stopped in the first organs of digestion, and requiring extraction by incision	455
Of bronchotomy	456
Three dangerous wounds of the larynx cured	456-62
Instances of successful bronchotomy	462-8
Wounds of the larynx and oesophagus cured	469-71
Operation of gastrotomy for extracting foreign bodies	472
Instances of wounds in the stomach healed	472-6
A knife	

CONTENTS to VOL. II.

A knife of 10 inches extracted from the stomach	477-8
Similar instance	478-9
Directions in gastrotomy	479
Of enterotomy	480
Analogy a source of improvement in arts	481
Instance of successful enterotomy	483
Claw of a sea-mew extracted from an inguinal hernia	484
MEMOIR XVIII. Observations on native hare-lips	488
Two histories of remarkable cures	488-96
Methods of operation of several surgeons	496-7
A notable cure by M. Girard	498
MEMOIR XIX. On a fistula of the perinæum	503
History of a remarkable cure	ib. 505
Reflexion	505
MEMOIR XX. An enquiry into the advantages, safety, &c. of the cæsarean operation	506
Part I. Proofs of its possibility	ib.
Two cases in which it is necessary	ib.
A passage of <i>Pliny</i> discussed	508
When the cæsarean operation was first practised by the Moderns, with a remarkable case	509
Of <i>Roussel</i> 's treatise on the subject	510-12
<i>Ambrose Paré</i> declares against it	513
<i>Roussel</i> translated by <i>Bauhin</i>	514
His defence	515
Censured by <i>Marchant</i>	516
Justifies himself by examples	517
Of several treatises, and matters of fact	520-4
History communicated to the Academy of Surgery	524
A multitude of successful operations	519-31
An extraordinary case	531-4
MEMOIR XXI. A new method of extracting the stone from the bladder	535
Of the <i>high apparatus</i> , and why so rarely performed	535-6
	Of

C O N T E N T S to Vol. II.

Of the <i>small apparatus</i> , as described by <i>Celsus</i> and <i>Albucasis</i>	537-45
Of the <i>great apparatus</i> , its defects, and remedy- ing them by the <i>master-stroke</i> , and the lateral operation	544-5
<i>Frere Jaques's</i> method, with M. <i>Mery's</i> remarks	544-8
M. <i>Raw's</i> method	548-9
Experiments for obtaining a new method	549-52
Instruments for that purpose	552-4
Method of performing the operation	554-9
Try'd with success on several patients	549-62
Inconveniences attending it avoided	562-7
MEMOIR XXII. On a cancerous tumor of the breast	568
The nature of the disease	568-9
History of a cancer removed by amputation	569-79
Anatomical inspection of the tumor	571
Experiments on the same	572-9
MEMOIR XXIII. Of a strangulation of the intestine by an adhesion of the epiploon	580
A fatal instance	<i>ib.</i>
A description of the parts affected, with figures	581-5
MEMOIR XXIV. Description, with cuts, of an e- lastic truss for hernias	584
MEMOIR XXV. On several singular hernias	586
The parts affected; with remarks	586-9
History of a remarkable hernia of the stomach	589-92
A hernia on the left side of the xiphoide cartilage	593
History of an intestinal hernia of the vagina	594-6
Intestinal hernias through the <i>foramen ovale</i>	596-604
MEMOIR XXVI. On an abscess of the lungs	605
A remarkable case	605-6
	M E-

MEMOIR XII. By M. F A G E T, the Elder.

Remarks on Abscesses which happen in the Fundament.

IT is not always sufficient to open the abscesses of the fundament, where the rectum is laid bare, but it is often necessary to make an incision in that intestine, in order to procure its re-union with the adjacent parts. Without this precaution, only a false cure is generally obtained: and, often, the return of the disorder obliges us, as we shall see in the following observation, to have recourse to operations much more considerable than that which had been neglected at first.

Section of the rectum, near the levatores ani.

On the 6th of *January*, 1739, M. *Gelé*, a man about thirty-two years of age, was at *Nantes* attacked with violent pains in the fundament, which were ascribed to internal hemorrhoids. On the 15th of the same month, there was a suppurated tumor perceived on the right hip, from the coccyx to the middle of the perinæum. On the 17th, a surgeon of *Nantes* opened this tumor in all its extent, without, however, touching the rectum. Fifteen days after there appeared a new abscess, which occupied all the left hip.

Observation, by the author, on an abscess in the fundament.

This second abscess was also opened by an incision parallel to the former, and these two wounds communicated with each other under the skin, which was attach'd to the coccyx: afterwards the ulcer spread almost round the rectum, and extended itself two inches deep, except near the perinæum, where the skin was only detach'd.

Return of the abscess on the opposite side.

After five months dressing, the ulcer was looked

S

upon

upon as incurable, by the surgeons whom the patient had employ'd in his own country, which induced him to come to *Paris*, where he arrived on the 9th of *June*, 1739. I examined the patient along with M. *Boudon* and my brother, and we all agreed that it was necessary to cut off about an inch and an half of the extremity of the rectum. I accordingly prepared the patient, and performed the operation in the following manner:

Operation. I first pierced the rectum, from right to left, with a large probe, which form'd an handle for me. I began to cut the portion of skin which adhered to the coccyx, and continued all along the adherence of the *levator ani*, as far as the middle of the perinæum, where there were a great many indurations and callosities, which I removed. I dressed the wound with a large doffil, and folded linen cloths, dipp'd in alum-water, and secured with several compresses, and a proper bandage.

I blooded the patient two hours after, and was even obliged to repeat the venesection in the evening, because there superven'd a retention of urine, produced by the tent, and accompanied with intense pain, and a fever.

Next day the necessity of going to stool, and the pains arising from the retention of urine, obliged us to dress the patient; and we were even forced to repeat the dressings several times a day, on account of a looseness, which continued for ten days, notwithstanding the use of purgatives and astringents.

On the tenth day the symptoms ceased, and the wound was so changed as only to require one dressing a day. This dressing I made of a large doffil, which terminated in a point, and which I convey'd into the rectum. I cover'd the bottom of the wound with other doffils, which I overlaid with several pledgets, spread with a digestive, prepared of equal parts of the liniment of *Arcaeus*, of the suppurative balsam,

balsam, and of the oil of St *John's* wort, to which I was obliged to add storax, and the balsam of *Fioraventi*, because there were several small portions putrefied. I continued to dress the patient in this manner for almost six months, being afraid, if I should do otherwise, lest his anus should be almost closed up. By means of this precaution, however, I brought about a perfect cure. What is particularly remarkable is, that the functions, which depend on the part on which it was necessary to operate, are perform'd by the new anus in the same manner as they were before. I shall account for these functions, after having given a detail of the motives which induced M. *Boudon*, my brother, and myself to perform the operation I have described.

There was, as I have said, an aperture made of the two abscesses at *Nantes*, one on the right, and the other on the left side, by means of two incisions, each three inches long, without, at the same time, taking the precaution to open the rectum to the bottom of any of these abscesses.

In all cases where there is no abscess formed in the neighbourhood of the fundament, it is necessary, if this abscess extends a little into the fat, and if the intestine is laid bare, to open the rectum to the very bottom, as in performing the operation for the fistula. Without this precaution, there are new collections of matter form'd, and the wound must necessarily become fistulous. It is sufficiently known that the regeneration of flesh is difficultly obtained, on the surface of every intestine deprived of its fat: in this case the pus is always lodg'd between the rectum and the fat, without a possibility of being expell'd by the approach of these parts: This will always be an obstacle to the re-union of this surface with the adjacent fat or flesh. The compression, to which it would be natural to have recourse, would

Reasons which
ought to engage
us to open the in-
testine.

become insufficient; the small part of the rectum, in contraction, would, by its muscular fibres, be constantly separated from the internal face of the wound, the pus would remain in it, and the ulcer would continue fistulous.

The only method, therefore, of avoiding this inconvenience, is to open the rectum, and cut the bundle of circular fibres to the very bottom of the abscess. This incision hinders the continuance of the pus between the intestine and the fat, and procures new flesh, which grows from the intestine itself, when the wound of this part regenerates; and this new flesh, being joined to that produced by the neighbouring parts, greatly facilitates the reunion of that intestine with the fat and skin. We ought, after having open'd the intestine, to introduce into the aperture a very soft tent, more or less beyond the section, according as it is more or less deep. By this method we may prevent various accidents, and obtain a perfect cure.

If, agreeably to these maxims, they had at first cut the intestine to the bottom of the abscess; if, by means of this incision, they had introduced a dossil into the fundament, or only long lint made up in form of a match, and extended between the divided parts of the intestine; and if they had continued to dress the patient methodically, there is reason to believe that there would have been no necessity for a second operation, and consequently we should not have been obliged to cut the rectum.

Remarks on the
state and functions
of the part,
after the cure.

It had been insinuated to the patient that, after the operation, he would discharge his excrements involuntarily, especially when afflicted with a looseness. I encouraged him as much as I could, supporting myself by the mechanism of that organ. However, his fears were not entirely removed till towards the end of 1739, when he had got such a violent

violent indigestion, that he was forced to go to stool twenty times in six hours. He forthwith sent for me, and told me that he retain'd his excrements with the same ease as formerly.

I observed that the new anus, surrounded with its cicatrix, representing an oval hole of two inches in circumference, was exactly closed up by three replications of the internal membrane of the rectum, which form'd three bodies like cherries.

I observed, further, that the *levator ani* not only serv'd as suspensors, but also perform'd the functions of the sphincter, being assisted by the rest of the circular fibres which had not been cut, and by the edges of the cicatrix.

I also observed that when M. *Gelé* wanted to go to stool, the oval of the new anus was augmented in proportion as the *fæces* descended from the colon into the rectum, and as they approached the aperture of the anus. Then the three cherry-like bodies disappeared, and the oval became round, to permit the passage of the *fæces*; and now and then the round hole became somewhat oval, to divide and separate the gross matter in proportion as it was discharged, that it might be expelled in portions, and at different essays.

When the evacuation was ended, the anus entirely resumed its oval figure, and the cherry-like bodies appearing again, closed up the anus, and prevented the access of the external air.

It appeared to me, in general, that the functions of the new anus were performed as well as before the operation, tho' they were no longer performed by the same parts; for almost the whole sphincter, or bundle of circular fibres which surround the rectum, had been cut off.

According to these observations, it is easy to account for the mechanism by which these functions are performed.

Mechanism of the new anus.

Description of the
levator ani.

The *levator ani*, as every one acquainted with anatomy knows, are a sort of fleshy, tendinous and floating net, that on every side surrounds the rectum which crosses it. These muscles are attach'd, before, to the internal and middle part of the pubes; they send off, in their passage, some filaments to the *prostate*, the neck of the bladder, and the bulb of the urethra. They continue all along the lateral parts of the pelvis, and form a kind of tendon on each side, by confounding themselves with the aponeurosis which covers the *musculi obturatores interni*. They are afterwards attach'd to the branches of the *os ischium*, and proceed thence, by a tendinous line, to the coccyx: from all this circumference they proceed to embrace the rectum, at the superior extremity of the sphincter, that is to say, about two inches from the anus in adults.

If this construction be well understood, we shall at first perceive that the *levator ani* must, by their contraction, elevate the part of the rectum to which they are attach'd. They, therefore, form a kind of plate, which sustains the fæces, the discharge of which is hinder'd by the contraction of the oval hole of the new anus, and by the exact approach of the cherry-like bodies above described.

We may also easily conceive why, when the muscles are relax'd, and the cherries disappear, the hole will open, and become larger; so that the fæces may be expelled, as well by their proper weight, as by the contraction of the abdominal muscles, and pressure of the intestines.

The action by which the new anus separates the excrements as they are discharged, is performed by the contraction of those parts of the *levator ani* which are attach'd to the pubes and coccyx; for when the orifice is dilated, these muscles cannot contract themselves, without making it resume its oval figure;

figure; and by this contraction the sides of the oval approach each other, with a force sufficient to divide the fæces.

The new anus retains the fluid matters, and even the wind, because the muscles can contract themselves enough to join the sides of the oval, so exactly, that they seem to perform the office of lips, which entirely close up the orifice of this new anus. But in this case the urine must necessarily cease to flow; for the sphincter of the bladder, and the *erectores* and *acceleratores* must necessarily be contracted.

From this theory, and the success of the operation we have described, we may, in my opinion, conclude, that a dread of an incontinence of the excrements ought not to hinder us from pushing the section of the rectum as far as the *elevatores*, in all cases where the disorder requires it; that is to say, to the height which we have nearly determined for adults, and which in children is proportioned to their age or bulk. Perhaps the hemorrhage may incommode those who have not been accustomed to practise operations of this kind; but the success of this I have related ought to inspire them with courage.

MEMOIR XIII. By M. HOUSTET.

Observations on Stones encysted in, and adherent to the Bladder.

THERE are so many different cases in the most ordinary operations, that it is almost hardly possible that operators should not overlook some of those which are a little uncommon. Thus 'tis necessary that the observations which, from time to time, bring them to our remembrance, should serve to awaken our attention. To cases of this kind we may justly refer such stones as are encysted in, and adherent to the bladder. In a word, these are so little minded, and so little known by most practitioners, that it seems necessary to have recourse to instances and facts, in order to prove their existence*. For this reason I thought it expedient to relate the following observations, and to subjoin the testimonies of creditable authors, in order to shew that these stones have been observed in all ages. I shall afterwards speak of the operations which either have been tried, or may be tried, for the extraction of these stones.

Different stones
encysted in the
bladder.

M. *le Page*, an officer of invalids, 75 years of age, and of a strong and healthy constitution, on the 25th of *June*, 1729, consulted me, with respect to very intense pains which he felt in the region of the perinæum. I easily introduced my probe, till it arrived near the orifice of the bladder; there my instrument met with an obstacle so considerable, that I was obliged to give it several different directions.

I. Observation, by the author, on several stones retain'd in cellules form'd in the membranes of the bladder.

By the different motions I made with my probe,
I per-

* *Colet*, *Tollet*, and some other celebrated lithotomists, have denied the existence of these stones, especially those of the adherent kind.

I perceived that the neck of the bladder, which was extremely contracted, constituted the whole of the obstacle: I had, however, the good luck to surmount this impediment, and to feel a stone in the bladder. The patient, desiring earnestly that it might be extracted, was with all expedition prepared for the operation, which, on the 7th of *July*, I undertook in the presence of *M. Bouquot*, surgeon major of the said hospital, and *Mess. Morand* and *Duverney*. I still found the same obstacle to the probe, which was conducted to the stone by directing it in the same manner as formerly.

After having made an incision in the usual manner, I, with considerable difficulty, introduced the male and female conductors into the bladder, and afterwards the pincers, with which I distinctly touch'd the stone; I attempted to lay hold of it, and imagined, from the separation of the rings, that I had done so: but in closing the pincers, I found that what I had laid hold of was a soft body, and not a stone. I made fresh searches for the stone, and the same soft body engag'd itself a second time in the blades of the pincers.

I then resolved to extract it, and when I had done so, I found it to be a fleshy excrescence. A second time I convey'd my pincers into the bladder, and extracted another similar extraneous body. These two bodies being removed, I very easily laid hold of three stones, which I extracted at three different times. But the patient having suffered a great deal during this long operation, it was impossible, notwithstanding all the care necessary on such occasions, to prevent several shiverings which appear'd next day, and were on the following days succeeded by an ardent fever, and a suppression of urine. His abdomen became tense on the fourth day, a delirium superven'd, and the patient died on the fifth after the operation.

In opening the carcass, we observed that the bladder had not its natural figure; since it was flat, like those of women who have born many children. The *vesiculæ seminales*, and their apertures, were so dry, that nothing could be expressed from them: The cavity of the bladder was very large, and its thickness very considerable; its neck was very narrow, and almost stopp'd up by the inflation of the scirrhus prostata, which, as we may see, A A A A, PLATE I. Fig. 1. was thrice more prominent inwards than in its natural state.

Beyond the prostata, towards the bottom of the bladder, we perceived a considerable folding in form of a crescent B, under which there was a cavity, the entry of which lay towards the prostata. This cavity, which was an inch and half deep, and about as much in breadth, contained a purulent matter.

We observed, in the thickness of the folding, or membrane in form of a crescent, several transverse furrows C C, and several holes which communicated with the bladder.

We saw, on the margin of the crescent-like folding, several dilacerations in the parts from which the two excrescences had been torn, D; and as these excrescences possessed the orifice of the bladder before their extraction, it is to be presumed that they were in some measure the cause of the resistance felt in introducing the probe, as well as of the difficult discharge of the urine.

The mouths of the ureters corresponded to the lateral parts of this impervious cavity, and open'd into the bladder. The rest of the internal parts of the bladder, from the cavity I have now described to its bottom, was overspread with orifices, which led into cavities, whose bottoms were much larger than their entries. These cavities, or cellules, as well as their entries, were of different bulks and figures,

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Fig. 1.

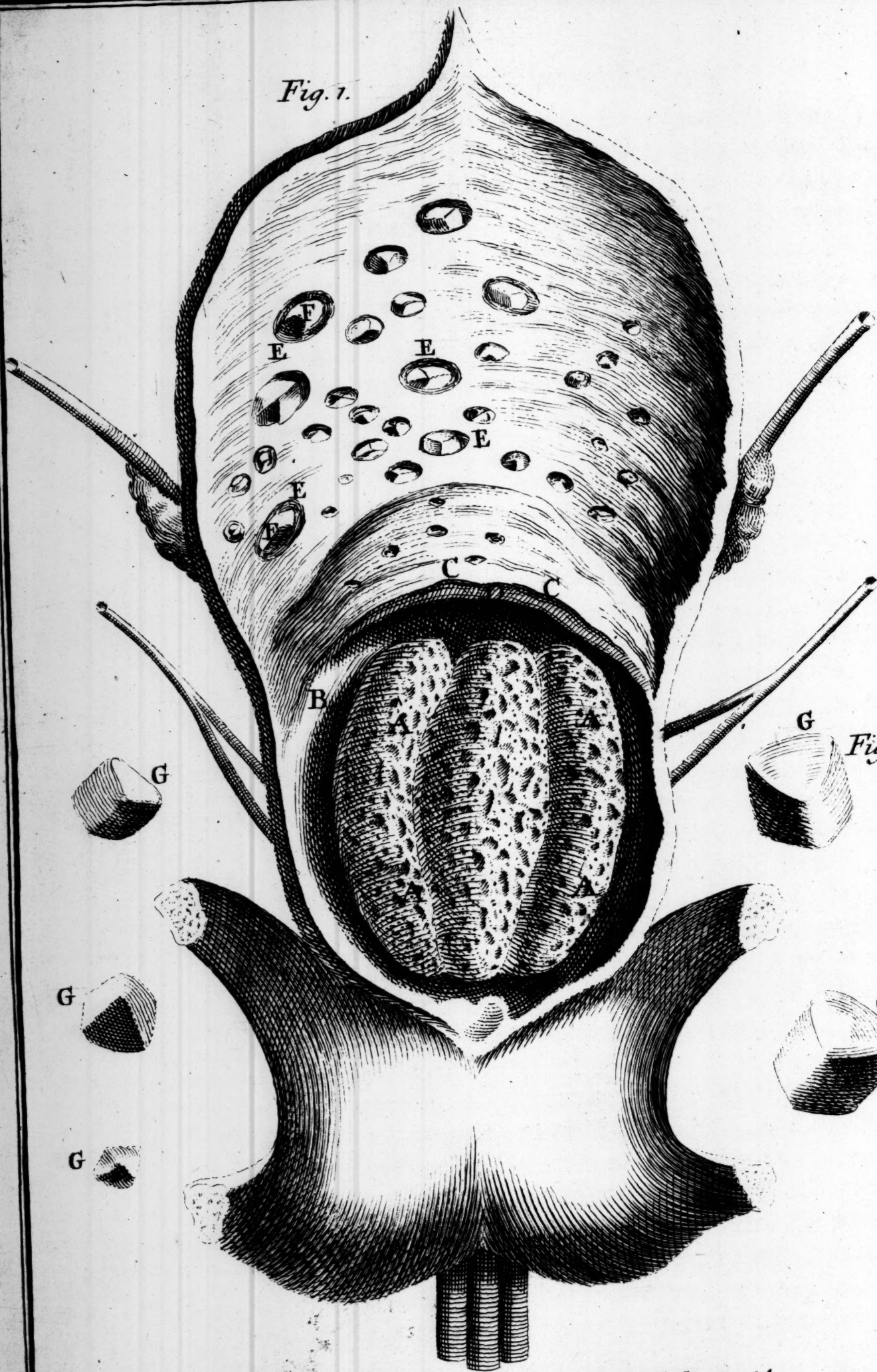
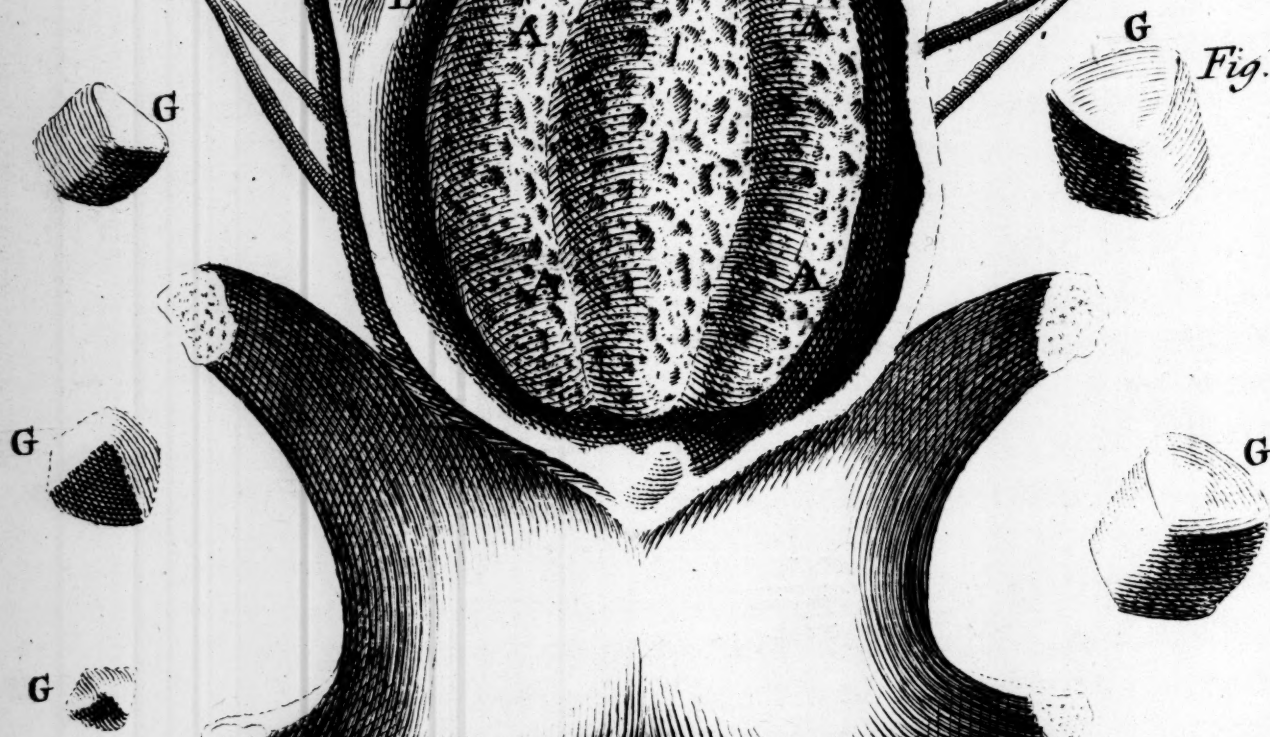


Fig. 2.



The Bladder opened, with the Pibes inverted, and a View of the Inside.

gures, and irregularly placed, E E E E; several of them contained stones, three of which I found like to those extracted in the operation, and each placed in its particular cellule, F F F.

The bottom of these cellules being large, and their entry very narrow, the stones they contained could probably only discover a very small surface. Hence it is evident that these stones might have been touch'd by the pincers, tho' the blades of that instrument could not lay hold of them. But what may seem most surprising to lithotomists is, that these stones, tho' included in distinct cellules, and distant from each other, were nevertheless flatten'd; and as their surfaces were very smooth (see Fig. 2 G G G) we have no room to doubt but certain stones may be exactly polish'd, without rubbing immediately one against another.

I have in my custody a dried bladder, in which there are three separate bags, whose entries are narrow, tho' their bottoms are very large. In one of these bags there is a stone so large, that it would have been impossible to lay hold of it in the operation; so much is the entry of the bag disproportion'd to the bulk of the stone.

II. Observation, by the author, on encysted stones.

Last spring I was present at an operation for the stone, perform'd by M. Bouquot, surgeon major of the royal hospital of invalids, on a man of 60 years of age, who was very much extenuated. M. de la Peyronie, first surgeon to the king, Mess. Guerin the father, Peron, and Guerin the son, were present at this operation. M. Bouquot finding it too difficult to lay hold of the stone, M. de la Peyronie introduced his finger into the bladder, and discover'd the impossibility of extracting it. M. Bouquot being afterwards convinced of the same, left the stone, and the patient

III. Observation, by M. Bouquot, on a stone included in a cavity at the superior part of the bladder, near the os pubis.

patient died some days after. Upon opening the carcass, we found a stone of the figure of a pear, and of the bulk of a small hen's egg. This stone was engag'd in a cavity of the form of a beazle of a ring, situated towards the superior part of the bladder, under the arch of the os pubis: this cavity had the following peculiarities; 1. it exactly embraced the stone almost in its whole extent; and 2. its internal membrane furnish'd elongations, which sunk into inequalities, or furrows, pretty deeply hollow'd into the stone, so that by means of these elongations, the internal membrane of this cavity was so strongly united with the stone, that they could not be separated without difficulty. In a word, we perceived that this cavity had an aperture towards the bottom of the bladder; but this aperture being very narrow, we could only touch a very small portion of the stone which was uncover'd, which circumstance, join'd to the intimate union of the membrane and stone, render'd it impossible to dislodge it.

I have for this purpose laid open the bladder (PLATE II. *Fig. 1.*) in its anterior part, from its neck to its bottom, and I have detach'd, from the anterior part of the stone HH, to the right and left, the membrane LL, which serv'd it for a particular cavity.

Fig. 2. exhibits the stone MM out of the bladder.

On the first of *December 1739* a negro, of about 15 years of age, died in *St George's* hospital. The preceding day the lateral operation had been performed on him, for extracting a stone, the symptoms of which he had laboured under for several years, and of which the surgeons were convinced, by the sounding of the probe. I could not be present at this operation, which was

IV. Observation,
by M. Amyand,
on a bony cystis,
or bag in the blad-
der, full of a stone-
like substance.

per-

Fig. 2.

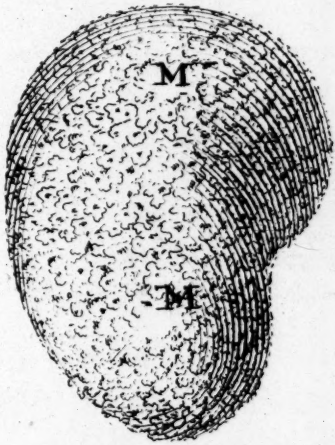


Fig. 1.



The Bladder opened, with a Stone incysted. The Os Pubis is inverted.

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performed before Mess. *Chefelden, Paulet, Vilbic,* and *Taubiapre*. Each of these gentlemen felt the stone with the hollow probe, before M. *Mideldon* proceeded to the operation, which was dexterously performed. However, as the stone in the bladder could not be discovered with the pincers, and as to the finger it is always felt with it thro' a membrane, some persons, little acquainted with practice, concluded that the road was missed, and that the instruments had made their way without the bladder, and thus determined, without scruple, to make the extraction of it by the small apparatus; and the rather, because, by means of the fingers introduced into the anus, they could push the stone, and the ease with which they felt it, and could protrude it outwards, seem'd to favour the operation; but it did not succeed. Many curious gentlemen were present at the aperture of the carcass; there was found in the internal and posterior lateral part of the bottom of the bladder, a bony cystis, as large as a chesnut, and full of a stony substance, which form'd a round hard body, that sounded against the point of the probe; this body was engaged in the internal membrane of the bladder, with which it was cover'd by a large base, which rose from the bottom of that organ, and rested on the rectum; so that, in the discharges of the excrements and urine, and in certain situations of the body, it stopp'd up the entrance of the urethra, and irritated that orifice, so as to produce those symptoms which had been attributed to a stone in the bladder.

M. *de la Peyronie*, on opening a man who died of the stone, found it contained in a cavity, the entry of which was closed up by a membrane that exactly cover'd the stone. He perceived by passing his finger over the part where this stone was included, that the membrane which

V. Observation, by M. *de la Peyronie*, on a stone encysted, and cover'd with a membrane.

cover'd

cover'd it was moveable, and that it was easily rais'd, and form'd a kind of curtain extended over the fore-part of the cellule. He rais'd this membranous expansion, and discover'd a considerable cavity, which was the cellule in which the stone was lodg'd. *M. de la Peyronie* examin'd this membrane before he separated it, and observed that it was produced above the cellule, near a corrugation of the internal coat of the bladder, by a folding, which had gradually extended itself so as to form the membrane of which we have been speaking.

In *M. Colot's* work, we find that that surgeon, having open'd a man who had been cut for the stone some years before, found that the bladder formed two cavities in form of calabashes, or gourd-bottles.

In 1723 *M. de la Peyronie* made an incision in the perinæum for a retention of urine, caused by a gangrenous abscess in the neck of the bladder, in a man of distinction.

Tho' the operation evacuated this abscess, and the urine flow'd copiously, yet the patient died on the third day. The cause of his death was found to be an abscess all along the ureter, from its opening into the bladder to the right kidney. The adjacent parts were very much injur'd, but what is still more remarkable is, that in the bladder there were four bags, pretty like those which gave occasion to this dissertation. They differed from them however in this, that, instead of stone, they were full of a purulent matter. When these bags emptied themselves, the patient discharg'd a great deal of pus with his urine; after which he was a long time without discharging any, or, to speak more properly, the pus did not begin to flow again till these bags, or cavities, were full.

On

VI. Observation,
by the same, on
several bags in the
bladder, filled wth
a purulent mat-
ter.

On the 30th of *April* last I was sent for by M. *Petit*, the son, to be present at the opening of a carcass, at which Mess. *Dargeat, de Dran, and Sorbier*, were also spectators; there was found in the left side of the bladder, near the part where the ureter pierces the internal membrane, a cellule, whose entry hardly permitted the introduction of the little finger, but whose bottom was large enough to contain a very large nut. This cellule contained neither stone nor liquor, and was entirely distinct from the ureter situated behind it.

VII. Observation, by the author, on a cellule found in the bladder.

Some days ago, on opening a lady who died of a malignant fever, I found the left kidney half dissolved, and in its bed a triangular stone of two or three drams weight, included in a particular cystis, or bag, which I shew'd to the academy. This lady had never complained of any pain in that region.

VIII. Observation, by the author, on an encysted stone in the kidney.

At opening another carcass, M. *Boudon* shew'd me a bladder, in which, between the prostata and the insertion of the ureters, there was a cellule, whose entry was less than its bottom, and which would have contained a pigeon's egg.

IX. Observation, by M. *Boudon*, on a cellule found in the bladder.

Some days ago, M. *Guerin*, the father, shew'd me the bladder of a man of 50 years of age, who had been cut for the stone last year. He had found a great deal of resistance in introducing the probe into the bladder. The incision being made in the ordinary manner, he had introduced the pincers, and at once extracted two pieces of fungous excrescences of flesh, and thirteen stones, shaped like those of the patient I have before-mentioned, but smaller. He used injections, with a view to bring away a stone which he had

X. Observation, by M. *Guerin*, on stones embarrassed in fungous substances, and others retain'd in cellules.

had touch'd with the probe, but could not lay hold of it; the patient, however, died eight days after. Upon opening the carcass, twenty-seven stones, like the former, were found included in particular cellules, some presenting one of their angles, and others one of their small faces to the mouths of their respective cellules. There was also on the right side of the bladder, an excrescence, in form of a mushroom, which in some measure stopp'd up the orifice of the bladder.

I am of opinion that these cellules are almost always the consequence of a retention of urine, and that they may be considered as hernias of the internal coat of the bladder, which in its dilatation has suffer'd a dislocation of the fleshy fibres.

XI. Observation,
by M. *Duverney*,
on the beginning
of cellules in the
bladder.

There are also, in several bladders, furrows or corrugations, which pretty nearly resemble the fleshy pillars within the ventricles of the heart, and are probably the commencements of those cellules; stones may be engaged in these, augment in them, and form lodgments, more or less large, according to their bulk. M. *Duverney*, who has one of these bladders, assures me that the patient discharged a prodigious number of stones during the course of his life.

Bladders, with cellules and cystises, are more common than is generally imagined. In short, the assiduous labours of surgeons to perfect the operation for the stone, and discover all the different causes which render it more or less difficult, or safe, have in all ages laid a foundation for the aperture of vast numbers of persons who have died of disorders of the bladder, and almost all the great practitioners who have

Many authors
have spoke of en-
cysted stones.

have gone before us, have observed bladders with cellules, bags and bridles*.

T

If

* *Tornamira* tells us that upon a man's dying of the stone, there were found in his bladder fourteen stones, some of which were floating, whilst others had a single, and some a double cystis; that is to say, these last were surrounded by two very distinct membranes. *Comment. ad Cap. 75. Rhasis ad Almanf.*

Hollerius speaks of a merchant in whom, tho' afflicted with all the symptoms of the stone, the surgeons could never by the probe be assured of its existence. The patient however died, and upon opening his body, there were found in the bladder two stones encysted in particular membranes, each of which weigh'd two ounces and half. *De morb. intern. Lib. 1. Cap. 49. Scholiograph.*

Horatius Augenius informs us that he saw a man, from whom a surgeon had taken a stone which weigh'd two ounces, and which was cover'd with a cystis. *Lib. 4. Epistol. 2.*

The same author observes that most of those who have stones adherent to the neck of the bladder die, on account of the violence that part suffers from the extraction. He has also observed that the extraction of stones adhering to other parts is not so dangerous. *Epistol. 1. Lib. 4.*

Schenkius mentions a patient who had all the signs of the stone, except those with which the probe furnishes us. He was cut, but no stone found; and dy'd. Upon opening the body, there were thirty two stones found included each in a particular bag; these stones filled the whole cavity of the bladder, so that there only remained a passage for the urine. This observation was communicated to the author by *Martin Holsapfelle*, a physician. *Obs. medicinal. Lib. 3. de Vesi. urinar. calcul.*

Mercurialis says it is certain that the stone sometimes insinuates and hides itself in the foldings of the bladder, and often escapes the searches of the operator. *Consult. 36.*

We also find in *Schenkius* an observation, nearly of the same nature, of a man who having all the signs of the stone, except the touch of the probe, died; and, upon opening his body, there was found in the bladder a stone of an enormous bulk, surrounded by a thick humour; so that the probe struck against this soft body. I believe there is no author among the *Greeks* or *Latins*, except *Hollerius*, who relates a similar fact. *Marcell. Donat. Lib. 4. Cap. 30. Hist. mirab. Med.*

Roussel, in his treatise on the *cesarean birth*, denies that there are encysted stones, but without any reason. He says that these stones would produce no pain, and consequently would not require the operation. To this we answer, that encysted stones always produce a pain proportioned to their weight, their bulk, and the distension they cause. It is however certain, that, for a long time, these stones are less painful than others, which, tho' floating in the cavity of the bladder, do not always produce intense pains. Observation has also evinced that those stones, tho' encysted, which are situated near the neck of the bladder, which is their ordinary seat, produce nevertheless both a retention and a heat of urine.

Aretæus observes, that, if the stone adheres to the bladder, we may be sensible of it by the complaints of the patient; for these stones are not without producing pain, and a sensation of weight, tho' generally they are not accompanied with a retention of urine. But if the urine is retained, pain will succeed this retention. *Lib. 4. Cap. 4.*

Fernelius relates that there are certain stones adherent to the bottom of the bladder, and in a manner suspended there, which produce almost no symptoms. Some patients have had these for a long tract of time, without any pain. *Pathol. Lib. 6. Cap. 13.*

Hollerius observes that the stone is sometimes loose, and floating in the cavity of the bladder, and sometimes adherent to it, in which last case we cannot make the extraction of it without violence; a fever and inflammation supervene, and death succeeds. *Scholiogr. ad Cap. 49. de morb. intern. Lib. 1.*

Cardan

Operations which have been or may be used, in order to extract encysted stones.

If stones remain in the cellules, and by augmentation so dilate the bottom of the sack, that the diameter of the stone becomes larger than that of the orifice of the cellule, then it cannot be extracted by pincers, and the surgeon would

Cardan, in his Comment on *Allemanus*, observes that the stones which he calls adherent to the bladder, grow more slowly than others, because the greatest part of the sediment of the urine does not adhere to the stone. *p. 115.*

Ambrose Paré says that there are stones adherent to the sides of the bladder, and cover'd with a membrane; and that, if the surgeon attempts the extraction of them by means of instruments, which must necessarily tear the bladder, he will kill the patient in consequence of the symptoms induced. *Lib. 17. Cap. 36.*

Fonseca says that 'tis easy enough to extract a floating stone, but that the case is not the same with such as are adherent; and that, on this occasion, the danger is great on account of the dilacerations we are obliged to make in the extraction, in consequence of which, death generally succeeds. These observations ought to excite the attention of those who perform this operation. *Lib. 2. Cap. 15. de calcul.*

Tulpius relates a fatal instance of an encysted stone of the bladder. *Obs. med. Lib. 3. Cap. 3.*

Dodonæus relates that a nephritic patient, after having drank a large quantity of *Rhenish* wine, felt violent pains, follow'd by bloody urine, mix'd with fragments of stone, with very sharp angles, and resembling small pieces of flint. Soon after the penis and scrotum were inflamed, and on the third day there appeared near the penis a gangrenous part, which being open'd, discharged a large quantity of pus, in which were several other fragments. The wound was cicatrised, but some time after, the patient having all the symptoms of the stone in the bladder, *Vesalius* performed the operation, and extracted five stones, two of which were adherent to the bladder, and the three others appeared to have been originally but one, and to be of the same nature with those fragments which had produced the symptoms.

Fabricius Hildanus informs us, from *Caspar Baubin*, that in the bladder of a man, who died of the stone, there were some large stones, which being included in a particular sack, and adherent to the sides of the bladder, could neither be perceived by the fingers nor the probe. The same author judiciously observes that, if the surgeons had trusted to the doubtful signs of the stone in the bladder, and afterwards cut the patient, they might have easily laid hold of the stone with its covering, and extracted it; but what would have been the consequence? Nothing, he thinks, but a speedy death could have been expected, after violent pains of the bladder, and an inflammation of all the internal viscera.

Peter Blandin, a physician of *Geneva*, relates that he found the bladder of a man as it were divided into two sacks, and in each sack six stones as large as a gall-nut. *Boneti sepulchretum, Lib. 3. Sect. 23. Observ. 4.*

Lavauguyon advises not to extract stones adherent to the bladder, for fear of lacerating the membranes of that organ. *Operat. de Chirurgie, Cap. 13.*

Isaac Cattier relates that he found in the bladder of *M. Cballiere*, a surgeon, who died of the stone, two stones, one of which, weighing two ounces, filled the whole cavity of the bladder; and the other, being less, was included in the substance, or between the two membranes of the bladder. *Observ. 3.*

Barbette says that if the stone is concealed between the two membranes of the bladder, or adheres to its internal surface, it cannot be extracted without proving mortal, *Oeuvres chirur. & anatom. Chap. 26.*

would be wrong in attempting it. We may be easily sensible of the terrible disorders which must necessarily arise from such a dilaceration: the best method of avoiding them, is, softly to introduce the fore-finger, by means of the conductor or the gorget; we are with the finger to make a gentle dilatation, and the bladder being collapsed by the evacuation of the urine, the bottom approaches to the neck, by which means we may easily touch the internal sides of the bladder, observe the place where the stone is fixed, and discover the measure of the aperture of the cellule, and the figure and bulk of the stone; after this, we are to try to dislodge it, if it is possible, with the finger, and even with a cutting instrument, if the situation of the stone permit it: M. Garengéot performed the operation with success.

In 1723, M. Quesnay, my comrade, who had settled at *Mans*, and wanted to see the lateral operation, prevailed on M. Garengéot to go to *Mans*, and cut a vine-dresser's son, between 10 and 11 years of age.

T 2

M. Ques-

Dr *Preston*, in the *Philosophical Transactions*, gives us an observation on a stone, which, tho' adherent to the bladder, was yet extracted with success. *Ann.* 1696. 222. art. 3.

In the collection of observations by the physicians of *Berlin*, we have the history of a stone in the bladder, included in a membrane. *Tome 4. pag.* 381.

Couillard relates several observations of encysted stones in the bladder. *Observations iatro-chirurgiques*, Obs. 2, 3, 12. The same author also treats of adherent stones; and, in order to detach them, proposes injections of tripe broth. *Traité de la lithotomie*, 103. He also speaks of stones which, when conducted thro' the ureters from the kidneys to the bladder, insinuate themselves between the membranes of that part. *Pag.* 73.

M. *Littre*, in 1702, gave a Memoir to the Academy of Sciences, on the stones, mention'd by *Couillard*, which pass from the ureters between the membranes of the bladder. *Mem. de l'academie des sciences*, 1702.

M. *Heister* gives us the history of a bladder with several cellules, which included stones. We find the figure of this bladder in his *Institutions of Surgery*, pag. 1016.

In the *Commercium Literarium*, pag. 402, we have also an account of a stone in the bladder, cover'd with a membrane.

XII. Observation,
by M. Garengot,
on the extraction
of an encysted
stone in the blad-
der.

M. *Quesnay*, who had been two months preparing the patient for the operation, and had prob'd him several times, could never touch the stone, which was situated behind the os pubis, but by passing gently over it with the concave part of the probe, at the time that its point enter'd the bladder. This stone was always so situated that he could never feel it after the probe enter'd the cavity of the bladder, which he knew to be large, both from the probe and the quantity of urine, three half pints of which, and sometimes more, were discharged each time he prob'd the patient.

M. *Garengot*, who prob'd the patient for the operation, perceived also that as soon as the point of the probe passed the neck of the bladder, in proportion as it penetrated the cavity of that organ, it gently touch'd upon a stone situated behind the os pubis. But when the probe was far advanced in the bladder, he no longer felt the stone, but discover'd that the bladder was very large, and contained a great deal of urine: the place, and fix'd situation of the stone, did not appear favourable to him.

He then declared before a physician of the faculty of *Paris*, and several surgeons present, that this operation would not be so expeditious as that they had seen him perform the preceding year, because the stone seem'd to be retained in a particular part of the bladder, either by some irregular figure of the stone or bladder, or by fleshy bridles, or perhaps by a particular sack, which suspended it, and kept it behind the pubes.

M. *Garengot*, in the Observation he has communicated on this subject, speaks in the following manner: "These are what the antients call'd *stones*
" *adherent to the bladder*; these adherences they
" discovered by the aperture of carcasses, but they
" have been denied by the moderns; I myself de-
" nied

“nied them in the first edition of my Operations,
 “and perhaps should have done so in the second, if
 “remarkable facts had not convinced me of the
 “reality of these different adherences. Among
 “these examples, I have seen, in collections of ob-
 “servations, two cases in which the stones could
 “not be extracted by the operation. The patients
 “happening to die, and their bodies being open’d,
 “stones were found in a particular cystis, which ad-
 “hered to the bladder: but the means and motives
 “which enabled me to make happy reflections on
 “this subject, were the Memoir which M. *Houfset*
 “read to the Academy, and the bladder full of en-
 “cysted stones which he then shew’d us. In a list
 “of a great number of stones differently adhering
 “to the bladder, which was the subject of his Me-
 “moir, he speaks, among others, of an officer of
 “invalids (*Observ. I.*) whose bladder he brought
 “to the academy. We saw that it still contained
 “three stones, as large as chesnuts, and included
 “in three different sacks. These sacks had a large
 “base, which appeared continuous with the internal
 “membrane of the bladder; they terminated by a
 “much narrower aperture, of the figure of a bow,
 “pad, or ring, in which one of the angles of the
 “stone presented itself, so that it could be touch’d
 “bare by the probe.”

A reflection on this example furnish’d M. *Garengeot* with a great many ideas, not only with respect to the causes which might fix the stone in this particular part of the bladder, but also with regard to the means of opening the particular sack or cystis, in case there should be one, and the manner of performing the necessary operations.

After a prognostic which gave but little hopes, and reflecting on the difficulties he was probably to encounter, he undertook the operation. When the patient was placed, and secured in a convenient

manner, M. *Garengeot* introduced the groov'd probe into the bladder, and when it was enter'd, he inclined the flat extremity towards the right groin, in order to direct the curvature of this instrument towards the tuberosity of the ischium. This method is different from that prescribed in his *Treatise on Cutting*, where, with *Chefelden* and *Morand*, he orders the probe to be held by an assistant, who ought to be conveniently instructed for that purpose. But if this assistant forgets the least of his instructions, the probe is put out of its situation, the neck of the bladder, and the prostata are put in other positions, with respect to this instrument, and the operator being disconcerted, makes the incision quite different from what it ought to be; a circumstance which has occasioned terrible symptoms, and even death. M. *Garengeot*, persuaded that the hand of another could not, in this case, always conform itself exactly to the views of the operator, held the probe himself with his left hand, and took the bistory destined for the operation in his right, and began the incision of the skin and fat at the place where the incision generally made in the great apparatus usually terminates, and continued it obliquely to the tuberosity of the ischium.

As this first incision is made by a single stroke of the bistory, and as it is not generally deep enough in the middle, especially in fat patients, M. *Garengeot* made a second stroke of the bistory, exactly in that part which lies between the *musculus erektor* and the *accelerator*, and which is only filled with a cellular and pinguious texture.

Without quitting the bistory, he convey'd his middle finger into this last division, in order to touch the membranous part of the urethra, and the point of the prostate gland, and to feel the groove of the probe; afterwards he inclined the point of his bistory towards the membranous part of the urethra,

thra, and made it enter into the groove of the probe. He cut this portion of the urethra, and the point of the prostata, and in depressing the bistory, to turn its edge towards the os ischium, he conducted it, along the groove of the probe, into the bladder, in order to cut, in this course, the internal part of the prostata, the neck of the bladder, and even a little of its interior part. In cutting these parts, the operator finds a great advantage in holding the probe himself.

M. *Garengeot* afterwards retracted his bistory a little, that it might be held fast in the groove of the probe by an assistant, and he conducted the tongue of a gorget on this instrument, in the same manner as is practised in the great apparatus, for thrusting it into the bladder.

The gorget being in the bladder, M. *Garengeot* introduced his finger by help of the groove of this instrument, and perceived, behind the pubes, the extremity of two stones which were on a level. The ease with which he touch'd these stones dissipated the idea of the difficulties he foresaw, and he thought of nothing more but to introduce a pair of pincers and extract the stones. As soon as he had introduced this instrument into the bladder, he extracted a stone as large as a small olive, and which weigh'd half a drachm. He afterwards wanted to extract the second, but after seizing it with the pincers 7 or 8 times, without being able to move it, he took a pair of crooked pincers, which he push'd very far, with a design to seize the stone in the middle. Upon the smallest effort he made to extract this second stone, he perceived a great resistance, and the patient gave a violent cry. M. *Garengeot* perceiving that the abdomen was at the same time depressed, thought it proper to retract the pincers without forcing any farther.

In order to discover what thus fixed the stone, and opposed its extraction, he introduced his finger pretty far into the bladder, and perceived that the stone was included in a particular sack, which at its inferior part had an aperture, thro' which the point of the stone passed. In turning the extremity of his finger to the circumference of this aperture, it lodged itself in the space possessed by the small stone which he had before extracted, which gave him the more liberty to feel the resistance of the sack.

M. *Garengeot* says that my Memoir then came into his mind, and suggested to him the method which succeeded. He put the fore-finger of his left hand into the patient's bladder, resting its top between the lip of the sack and the stone, and then conducted a bistory along the finger to the stone. He pressed the edge of this instrument, directed by the finger, upon the lip of the sack, and perceived that he cut a membrane, which made a resistance like wet parchment. After cutting upwards, almost the whole length of the sack, he retracted the bistory, that, with the nail of his right fore-finger, he might disengage the parts of the sack, which he found somewhat adherent to the stone, whose posterior surface, which he laid bare, was rough like shagreen*. He afterwards introduced a pair of pincers into the bladder, and without any great effort extracted a stone as large as a hen's egg, which weigh'd sixteen drachms and half.

As this operation was long and laborious, the patient was very much incommoded for fifteen days.

M. *Ques-*

* *Couillard*, a French surgeon, who liv'd in the beginning of the last century, gives an account of a nearly similar operation. He says that in probing a patient he found the stone encysted; notwithstanding which, he undertook the operation, being determined to tear the cystis, which he did with success, and extracted a stone as large as a hen's egg. The cystis was afterwards expell'd thro' the wound, and contained two hundred small stones. *Observat. Iatrochirurg. Obs. 2.* The success of this operation confirms the practice of M. *Garengeot* so much the more, because *Couillard's* method of practising the great apparatus does not seem to differ from what is at present called the lateral apparatus, which some take to be a new invention.

M. *Quesnay*, who took the charge of dressing him, performed his office with so much care and attention, that he soon compleated a perfect cure.

If we discover, by the assistance of the finger, that there are insurmountable obstacles, a prudent surgeon ought to abandon these stones, and labour to reunite the incision, by treating it as a common wound; but this is only to be done where we cannot, by frequent injections, and procuring copious suppurations; obtain the disengagement and discharge of the stones.

There may be bladders of such a bulk that the finger cannot run thro' all their cavity, in order to discover the adherent stone; but bladders of this kind are very rare.

The use of the finger is not only necessary in bladders with cellules, but also, in order to be assured of the possibility of extracting certain stones, which entirely fill the bladder, and which we absolutely cannot extract by any of the apertures usually made in the perinæum, however large they may be. It is, therefore, by the finger, that we can distinctly know this enormous bulk, and afterwards determine ourselves to extract them by the high apparatus †, the only method of affording relief to the patient. It is by means of the finger that many lithotomists direct their dilatation, and discover one or more stones, which frequently escape the pincers and the probe.

M. *Littre* relates § that, in dissecting the body of a young man, he found two stones contained between the membranes of the bladder. These stones, according to M. *Littre*, having pierced the ureter in that part of it which is comprehended between the sides of the bladder, had made their way into the substance of the bladder, from the ureter to the
part

† A method invented by M. *Franco*, and which has often succeeded.

§ *Memoirs of the Royal Academy of Sciences, Ann. 1702.*

part where they had stopp'd and been enlarg'd. M. *Littre*, justly persuaded that it is reasonable to venture in proportion to the violence of the disorder, and the difficulty of removing it, proposes means to facilitate the extraction of these stones. If the stone, says he, included in the sides of the bladder is not large, and makes no great prominence into its cavity, the surgeon is to convey his probe into the bladder, and his fore-finger into the rectum of men, and into the vagina of women, and search for the stone. Having found it, he is to secure it on both sides, and by different motions of the probe backwards and forwards, gently break the side of the bladder which covers the stone, or at least so gall it, as to enable the bladder to tear it by its fleshy fibres when they contract themselves for expelling the urine. The hardness of the stone, and its inequalities, if it has an unequal surface, will favour this dilaceration, as well as the pus, if the gall'd parts come to a suppuration. When the parts of the bladder which internally cover the stone are lacerated, the fleshy fibres of that organ will not, according to that author, fail gradually to push the stone into the cavity of the bladder by their reiterated contractions; and the surgeon may afterwards extract it by the usual operation, when the symptoms, if any happen, are over: then he is to cure the ulcer of the bladder by vulnerary waters, mineral waters, and deterfive injections. If the stone included in the sides of the bladder be very large, and form a very sensible prominence in the internal surface of the bladder, M. *Littre* says that we may even make the usual incision for the stone in the perinæum, convey pincers into the bladder, search for the prominence, and lay hold of it gently at several times, in order to lacerate the parts of the bladder which cover the stone internally, by which means the stone will be disengaged, and may be extracted.

Surgeons will be easily sensible of the uncertainty of the success which must attend these attempts, proposed by M. *Littre* to dislodge the stone. Surgery has at present a much surer method in the like case, that is, when below the ureter there is a stone included between the membranes of the bladder, and when we can, as M. *Littre* supposes, secure it, and bring it towards the perinæum, M. *Foubert's* method of cutting teaches the way of disengaging this stone; for, by making the incision in the place where that surgeon makes it, we may, when we have cut the skin, and a part of the fat, feel the prominence form'd by the stone, which the finger in the anus secures, opposite to the incision; afterwards we cut the other parts which cover this stone, and extract it.

It seems to have been by a nearly similar method, that a stone strongly adhering to the bladder, and of which *Riedlinus* gives us the history, was extracted. A boy of eleven years of age, who had for seven years been afflicted with nephritic pains, was put into the hands of a lithotomist, who, willing to extract the stone by the operation of the little apparatus, did all he could to bring it to the perinæum with his finger in the anus. But not being able to execute his design, he was obliged to quit the patient, who forthwith discharged bloody urine. He wanted afterwards to try the same operation of disengaging the stone by injections; but as the boy would by no means suffer it, the operator made a new essay to bring the stone to the perinæum, and succeeded. He made his incision over the stone, laid it bare, and extracted it very easily. This stone weigh'd about seven drams, and had the figure and bulk of a pigeon's egg; but, what was very singular, at one of its extremities appear'd a pretty thick membrane, which was strongly adherent to it. We did not doubt, says the author, but this membrane

was

was a part of the coats of the bladder, both by an examination of the membrane itself, and by the difficulty the operator found to bring the stone to the perinæum. However, notwithstanding the dilaceration of the internal coat of the bladder, which laid a foundation for dreading terrible symptoms, the patient got out of bed on the fifth day, and was perfectly cured on the twelfth. From this observation we may infer that the method used for the extraction of this stone is much more sure, and less dangerous than that proposed by M. *Littre*.

Riedlinus says that the operator had a design to try injections for loosening the stone, but that the patient would not submit to them. This method, which generally succeeds when there are many small stones or fragments in the cavity of the bladder, seems to be very insufficient for detaching an adherent or encysted stone. M. *Guerin*, as we have seen in the ninth observation, employ'd them to no purpose, tho' M. *le Dran* had recourse to them with success, for disengaging a stone stopp'd at the extremity of the ureter. But it is to be observed, that M. *le Dran* had distinguished certain circumstances in this case, which gave reason to expect some advantages from this kind of remedy.

A citizen of *Roan* had been cut when eight years of age; a pretty large stone was extracted from his bladder, and several small ones were discharged from the wound in the subsequent dressings. There remained a small fistula, thro' which only a few drops of urine were discharged. When eighteen years old, he was cut a second time, and then the stone was only in the ureter, and could be felt by pressing the finger on the perinæum. Some years after there was a very small stone discharged from the fistula, after having remain'd for some time under the skin. M. *le Dran* ob-

XIII. Observation
by M. *le Dran*,
on a stone stopp'd
in the ureter, ex-
tracted by litho-
tomy, by the as-
sistance of injec-
tions.

observes that this patient never had nephritic pains ; whence, says he, we may infer, that, if these pains make us conclude on the presence of a stone in the bladder, the want of them ought not to prejudice us to the contrary opinion.

In *October* 1732, which was twenty years after the second cutting, the patient began to feel some pains on the least efforts he made either in going to stool, or in making water. These slight pains were not so much felt with the last drops of urine, as when the stone rested on the neck of the bladder. They lasted two months, at the end of which time, in going to stool, he perceived a very intense pain in the region of the bladder on the left side ; he had at that time a desire to make water, in doing which he suffer'd a great deal of pain, and the urine was tinged with blood.

From that time, which was the 15th of *December*, to the 15th of *January*, when M. *le Dran* cut the patient, there appeared no blood in the urine, but he always felt a slight pain in the same part : he said that on the left side of the bladder, some substance seem'd to be placed cross-wise ; he retained his urine as long as he pleased, which shew'd that the bladder was sound. In order to make water, he was obliged to lie on his right side, since he could not do it either when standing, or lying on his left side. The last drops of urine were discharged with intolerable pain, as if he had had a large stone in the bladder. However, the stone which caused these symptoms was fixed in the ureter, as we shall afterwards see.

The patient, fatigued by the pain, came to *Paris*. M. *le Dran* probed him several times, with probes of different incurvations, and in different postures, that is, sometimes standing, and sometimes lying, without being able to feel the stone ; at last he felt it, distinctly enough not to doubt of its existence.

But

But as he only struck gently upon it, and as he had introduced the probe several times without feeling any thing, he concluded that it was a very small stone, but did not suspect that it was engaged in the ureter, as it really was.

M. *le Dran* having prepared the patient for the operation, performed it, and the pincers being in the bladder, he could not find the stone: having retracted it, he introduced the button, and after some researches found the stony part, which he had felt with the probe, and which he could not remove from its place. M. *le Dran*, upon the button, conducted another pair of pincers towards that part, but to no purpose; he therefore put a cannula into the wound to keep it open, and ordered the patient to be laid in bed, hoping that the stone, which he thought was small, would either change its situation, so as to be more easily laid hold of, or be discharged with the urine.

The operation was succeeded by no new symptom, but those which depended on the presence of the stone still subsisted; the wound nevertheless was soon in a full suppuration. Then M. *le Dran* made emollient injections into the bladder, by means of a female probe introduced thro' the wound, and on the twelfth day found a very small stone in the dressing. But having introduced the probe once more, he found in the same place the stony point, which he had felt several times.

We shall here mention an useful remark, which the author makes on the same subject: "I have, says he, often observed, as well as others, that, in most bladders which have suffer'd by the stone, there is form'd, a little higher than their orifice, at the place where they are join'd to the rectum, a kind of crispation or tension of the aponeurotic fibres, which run from the insertion of one of the ureters to that of the other. These tense fibres

" form





Fig. 1.

Fig. 2.

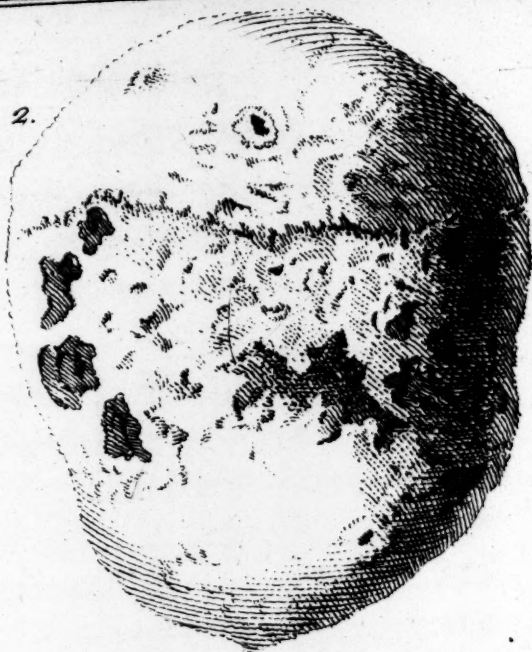


Fig. 3.

Fig. 4.



Fig. 6.

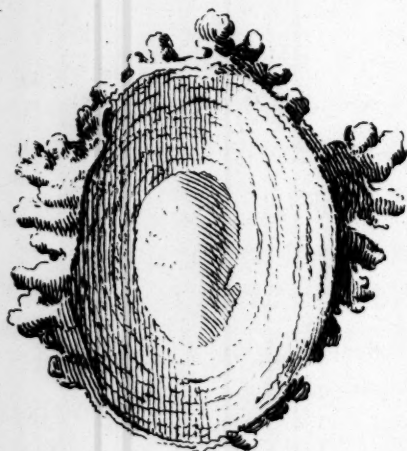


Fig. 7.

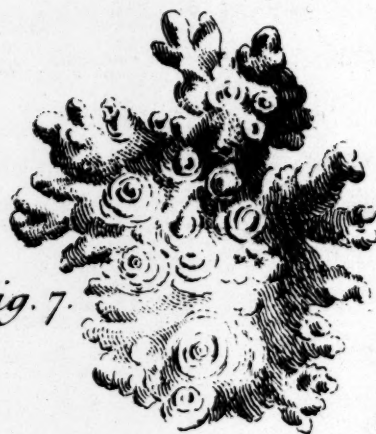


Fig. 5.



Fragments of the Stone Fig. 6. and 7.

“ form a sort of ligament or cross, somewhat pro-
 “ minent, and situated an inch or two from the ori-
 “ fice, according as the bladder is more or less
 “ shrivelled; and this seems to divide the bladder
 “ into two unequal cavities, the one small and an-
 “ terior, and the other large and posterior, when
 “ the patient lies. Tho’ the bladder of this pati-
 “ tient had not suffer’d, and was not shrivell’d, yet
 “ there was a similar tension from one ureter to an-
 “ other, because one of them suffered from the
 “ presence of a stone, which was almost wholly en-
 “ gaged in it. I only felt the stony point behind
 “ this cross ligament, at the distance of full five
 “ inches from the entry of the wound; it was even
 “ necessary, in order to feel it, to turn the point of
 “ the female probe on the left side towards the rec-
 “ tum.”

These circumstances, join’d to the immobility of the stony point, made M. *le Dran* suspect that the stone was engaged in the ureter, and that emollient injections might procure such a relaxation as would facilitate its disengagement. These injections were used for a month, softened the mouth of the ureter, and made the place where the stone was suppurate, for the matter discharg’d was often full of filamentous portions.

During this time, M. *le Dran*, by different means, took care to hinder the wound from growing too narrow, and at different times he convey’d small pincers into the bladder, but without being able to lay hold of the stone; because, in order to open them, it was necessary that the nail which joins the blades, should be at the narrow part form’d by the ligament, and then the extremities reach’d beyond the stony point which he wanted to lay hold of. He consulted with M. *Boudou*, who also acknowledged the impossibility of seizing the stone.

The sides of the bladder approach’d by little and little,

little, because the urine was easily discharged. Perhaps it was by this contraction that the stone became a little more prominent into the bladder; for at the end of six weeks after the operation, *M. le Dran* touch'd it with a strait probe, which he could not do before. He then introduced not pincers, but a forceps, like those used in dressings, and of a length proportion'd to the distance of the stone, by which means he laid hold of it by the end, and extracted it without any resistance. He was surpris'd to find it about two inches long, shaped like a small horn*, as large as a small bean at the end that he seized, and as big as the thumb at the other extremity. The end of the stone lodg'd in the cystis was as large again as that felt in the bladder. *M. le Dran* says, he should have been surpris'd at the facility with which he extracted it, if he had not been convinced that the part in which it was engaged had suppurated, as is usual with the inside of the bladder, when molested with the presence of a rugged stone. Since that day the patient felt no pain, and his wound, by regular dressings, was clos'd and perfectly cicatrised.

We sometimes find stones included in varicous cystises, whose vessels insert themselves into the porities or inequalities of the surface of the stone. The extraction of these stones is highly dangerous, and even sometimes absolutely mortal, by the hemorrhage which succeeds the operation.

In 1731, *M. de la Peyronie*, in the Hotel Dieu, cut a man about thirty years of age: after having made the aperture in the urethra and neck of the bladder, he introduced the pincers, and easily laid hold of the stone; but in the motion he made to extract it, he was stopp'd by an obstacle, which he could not attribute to the neck of the bladder, since it was sufficiently enlarged to admit the extraction of a much larger

XIV. Observati-
on, by *M. de la
Peyronie*.

larger stone. From this circumstance *M. de la Peyronie* concluded that the stone might be retained by some adherence to the membranes of the bladder; in order to disengage this adherence, he gently turned the pincers which held the stone, from right to left, and back again. After two or three of these motions, in which he felt some resistance, he perceived that the stone was sufficiently moveable to be extracted without any obstacle, and he accordingly extracted it with great ease. The patient, during the operation, lost no more blood than what is usual on similar occasions; he was put to bed without any symptoms, and the wound had only a flat dressing, that is, without having any thing put into it. Upon inspecting the stone, and some ends of lacerated vessels, which form'd a kind of fringe about it, *M. de la Peyronie* made a bad prognostic of the success of the operation. The stone weigh'd two ounces and six drams, was two inches long, about an inch and six lines broad, about twelve lines in thickness, and shaped like a gourd, with its bigger part downwards. The stone was bloody, and seem'd to have been taken from a particular cellule of the bladder. It is probable that the membrane which closed the entry of this cellule surrounded the stone at the part which separated its two bellies or prominences; this had, no doubt, contributed to retain the stone more firmly in its cystis. In short, it was easy to perceive, on the depression in the middle, the marks of an adherence which the sack had contracted with the stone by its vessels, which were inserted in black and deep cavities, as may be seen in **PLATE III. Fig. 1, 2, 3, and 4.**

These cavities were two or three lines deep, and larger at the bottom than at the entry. They seem'd formed of the last layers which had augmented the stone, since the time that the blood-vessels which lined these cavities had become attach'd to its rough

surface. The black colour of the internal sides of these cavities, probably, proceeded from the blood stagnating in them for some time.

The pincers had laid hold of that end of the stone which was without the sack, and in this part the impression, made by the teeth of the instrument, was evidently to be seen.

When *M. de la Peyronie* had remarked the ends of the broken vessels which remained attach'd to the stone, he very much doubted of the success of the operation, and he had good reason so to do; for, some hours after the patient was dressed, there appeared an hemorrhage from the internal part of the bladder, which nothing could stop; it proceeded from the vessels which had been torn, when the stone was detach'd from its cellule. The hypogastric region was elevated and tense, the pulse beat weakly, the extremities became cold, and the patient died about eighteen hours after the operation. The bladder, and the cavity in which the stone was contained, were, upon opening the body, found prodigiously dilated, and full of coagulated blood.

In this case the hemorrhage proved mortal, by the great loss of blood, which could not be stopp'd. But, as *M. de la Peyronie* remarks, the hemorrhage may also prove mortal in other cases, even when it is not very considerable. It is sufficient to destroy the patient, that the blood be retained in the bladder; or that, by means of the wound, it insinuates itself into the cellular texture, and there becomes stagnant and corrupted. Thus, when we suspect such an hemorrhage, with a stagnation of the extravasated blood, we ought, by means of a canula, to prepare a free passage for the blood thro' the wound, and use some gently astringent injection, to stop the hemorrhage, and wash the bladder, if there be occasion.

For stopping these hemorrhages several attempts may be made; but it is greatly to be dreaded that they

they will all prove ineffectual. The singularity of the case, the extraordinary dilatation of the vessels, their depression into the substance of the stone, their fringe-like dilaceration, and the depth of the cellule which includes the stone, are circumstances which present us with seemingly unsurmountable difficulties.

An hemorrhage is not the symptom most to be dreaded, when we attempt to disengage an encysted stone only with the assistance of pincers, since there is another danger to be avoided, which consists in the fatal consequences of the attempts and efforts made to extract these stones, when they are strongly retained by the cystis. A prudent operator, who finds too much resistance, attempts not to surmount it, but stops in time. However, notwithstanding this command of himself, he has sometimes the mortification to see the patient die; for the most gentle efforts may be succeeded by inflammations, gangrenes, and other mortal symptoms.

On the 10th of *October*, 1741, a young man of 23 years of age was presented to the Hotel Dieu, who said that for ten years past he had suffered violent pains, especially when he work'd, or fatigued himself by walking. His urine was frequently tinged with blood,, and the pain was augmented when he had an inclination to make water, and even after he had discharged his urine. The patient having taken some repose, *M. Boudou*, surgeon major to the Hospital, probed him, and found that there was a stone in the right side of the bladder.

XV. Observation,
by *M. Boudou*, on
an encysted stone
of the bladder.

After the use of general and particular remedies adapted to his state, *M. Boudou* determined to cut him on the 19th of the same month by the great apparatus†. The incision being made in the usual man-

† In which the surgeon opens the neck of the bladder as far as its cavity.

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manner, by means of a conductor he convey'd a pair of pincers into the bladder, and touch'd the stone, which appeared to be fixed. With the pincers he had laid hold of a portion of this stone, but, instead of yielding to his efforts, it broke, and he could only extract that portion of it which was between the blades of the pincers. Having again introduced the pincers, he felt the other portion of the stone, but it was impossible for him to lay hold of it, whatever motions he made for that purpose; for when he touch'd the stone with the extremities of the pincers, and try'd to close them, he perceived that, instead of laying hold of the stone, he seized something which to him appeared to be the sides of the bladder most contiguous to the stone; this induced him to believe that this portion of the stone was included in some particular cellule form'd by the bladder. He discovered his sentiment to the by-standers, and judg'd it improper to fatigue the patient by useless efforts to extract the stone.

The patient being put to bed, and having had some repose, he dress'd him; but his pain, instead of ceasing, augmented in the night time, and he died next day.

By opening the body, it was found that M. *Boudou* had not been mistaken in the judgment he pass'd on the state of the stone. In short, it was found in a membranous sack, proportion'd to the bulk of the body, which did not exceed that of a large mulberry. In its figure and colour it resembled a truffle of a very hard consistence; its surface was rugged, with many points, which, by their pungency, had probably caused the cruel pains with which the patient was tormented. However, as M. *Boudou* observes, experience convinces us that encysted stones generally produce less pain than such as float in the bladder. He also informs us that it is very rare to see the surface of these stones rough with points,

points, like that of which he speaks, and which may be seen in PLATE III. *Fig. 6* and *7*, together with the fragments of the same stone.

The cystis which included it was placed on the right side of the bladder, a little above the orifice of the urethra. M. *Boudou* having compared what he had extracted of this stone, with the portion included in the bag, judg'd that he had only taken away the third part of it. By opening the bladder there was also an inflammation perceived, which had affected almost its whole inside.

This is not the only observation, says M. *Boudou*, with which practice has furnished him on the same subject, that is, on encysted or rather enchased stones; for all the surfaces of these stones are not entirely included in the bags which retain them. That surgeon says that in 1737 he was consulted by a man of 33 years of age, who felt pains similar to those which indicate a stone in the bladder. The patient said that he had been tormented with those pains from his infancy till he was thirty years of age, at which time they disappear'd so thoroughly, that he thought he should for the future be free from them. Being persuaded of this, he ventured to marry; three years after which his pains were renew'd, and after having endured them for 2 years, he determined to come from the *Indies* to *Paris*, in order to have the operation performed upon him, hoping that, by this means, he might be freed from his pain.

XVI. Observati-
on, by the same
author, on the
same subject.

He arrived at *Paris* during the great heats in the month of *June*, and having apply'd to M. *Boudou*, was probed, and found to have a stone. M. *Boudou* agreed with M. *Dumoulin*, whom the patient had chosen for his physician, to use general remedies, and even baths. These preparations were continued for three months, and appeared necessary, as well on

account of the great heat, as of the fatigue and pain the patient had undergone.

But M. *Boudou*, having probed the patient a second time, found that the stone was placed at the right side of the bladder, in the same place where he had felt it before. Some days after, having probed him again, and found the same thing, he told M. *Dumoulin*, that he thought the stone was not free, but fixed in the same place, and that he was persuaded it was included in some particular sack, form'd in the cavity of the bladder, and that consequently the operation would be useless.

He could not, however, resist the importunities of the patient, who expected, by the operation, to be freed from his pain; but the operation had no other success than what M. *Boudou* had predicted. When he had opened the bladder, and introduced the pincers by means of a conductor, he touch'd the stone in the same place where he had felt it with the probe; but it was impossible for him to extract it, and the patient died three or four days after the operation. On opening the carcass, it was found that the stone was enchas'd, and that the cavity which included it had been formed by all the membranes of the bladder, which were so worn near the cystis, that the stone was only sustained by that portion of the perinæum that covers the posterior part of the bladder, without which it would have fallen into the pelvis, which perhaps would have happened, if the operation had been deferr'd. This stone was near as large as a hen's egg, and flattish.

MEMOIR XIV. By M. de la PEYRONIE.

On some Obstacles to the natural ejaculation of the Semen.

THE fault of ejaculation we intend to consider, is of two kinds. The one consists in such a disorder of the ejaculatory vessels, as is generally irreparable: the other depends on those tumors, or indurations, which are formed in the *corpora cavernosa*, and either weaken or hinder the action of the organs destin'd for the expulsion of the semen. These tumors are very difficult to be remov'd, since the most powerful remedies, generally used for the cure of other hard tumors, very rarely produce any effect on these.

A man of thirty years of age being married at twenty six, had, in the course of four years, three children by his wife, who was younger than himself. At the end of this time he receiv'd, from another woman, a gonorrhœa, which was not only much neglected by him, but also very ill treated by several quacks, to whom he intrusted himself for two years, without receiving any relief from their remedies. The principal symptoms, during the course of this disorder, were suppressions and heat of urine, and very copious discharges of a matter, which was sometimes green, sometimes yellow, and very often bloody.

This discharge of matter was stopt by a journey on horseback, which produc'd a considerable deposition on the right testicle.

I. Observation by the author on a fault of ejaculation, occasioned by a disorder of the expulsive vessels, which could not be cured.

1st kind of fault of ejaculation, which depends on a disorder of the expulsive vessels.

At this time I began to have the management of him; I prescribed him a proper regimen, broths,

ptisans, and other cooling and sweetning remedies. He used baths, and I afterwards order'd him mercurial frictions; milk and forge-water terminated the cure. At the end of four months he appeared perfectly cured, and began to embrace his wife, from whom he had abstain'd from the beginning of his disorder. At the end of two years, his wife, tho' formerly prolific, did not become pregnant; for which reason he became uneasy, and acquainted me not only with the state of his mind, but also with some symptoms which continued after he was cured of his heat of urine.

1. In the ejaculation, the semen was not convey'd thro' the aperture of the glans, as formerly. 2. This liquor, being retain'd in the canal of the urethra, was only discharged in the form of slaver, and in proportion as the erection diminish'd, but it was evacuated more copiously when the penis or urethra were compressed. 3. The species of commotion, and the sensation felt in the beginning of ejaculation, or when the semen was discharg'd from the expulsive vessels were as lively and quick as before: but neither this commotion nor sensation lasted so long.

I imagin'd that the sterility of the woman was to be ascrib'd to those obstacles which retain'd the semen of the man, and hinder'd it from being discharg'd by jets, and arriving at the orifice of the uterus during the erection of the penis.

The urine was discharged with ease, and in a full stream; so that there was no reason to suspect either a strangulation, or carnosities in the urethra; for, except the three symptoms I have mentioned, the husband perceiv'd no disorder in any of his natural functions.

When he knew what I suspected to be the cause of the sterility of his wife, he spar'd no pains to remove the disorder. But it was hardly possible to
be

be positively sure, either of the place where the disorder which opposed the ejaculation of the semen was seated, or of the species of this disorder. Besides, there are certain faults of the solids, capable of opposing the natural discharge of the semen, which, though perfectly known, are nevertheless incurable. These motives prevented my prescribing him any remedies, so that he applied to other hands, numbers of whom pretend to cure the least known and most incurable disorders. He took medicines from a great many different persons, and always without success. At the end of five or six years he died of an acute disorder, intirely independent of the original distemper, which continued constantly the same till his death.

I was fond to discover the cause which, after the cure of his gonorrhœa, had opposed the natural ejaculation of the semen; for this purpose I open'd the urethra on the superior part of the penis, by separating the *corpora cavernosa* from each other, from the aperture of the glans to the bladder. This incision enabled me to discover * a cicatrix on that portion of the *veru montanum* which looks towards the bladder. The bridles of this cicatrix had so chang'd the direction of the expulsive vessels, that their apertures, instead of being directed as naturally to the point of the penis, were towards the neck of the bladder; so that it was absolutely necessary, considering the winding of these vessels, and the position of their apertures, that the ejaculation of the semen, which is naturally directed to the end of the penis, should be reflected towards the right side of the neck of the bladder. In order to assure myself of this, I made injections through the *vasa deferentia*, into the *vesiculæ seminales*. The injection, after having fill'd these two receivers, follow'd the winding of the expulsive vessels, and broke

* See the figure,

broke out against the right side of the neck of the bladder; which is a road very different from that kept by the liquor injected into these parts when in their natural state; in which case, as we have said, the liquor is directed towards the end of the penis.

It would have been necessary, in order to re-establish the natural course of the semen, to destroy the bridles of the cicatrix, which had displaced the expulsive vessels, and turned their apertures the opposite way. It would have been also requisite to restore the direction of these vessels, that the semen might be convey'd into the urethra, according to the direction of the penis. But it was impossible, by simple remedies, or any chirurgical operation, to rectify these vessels, and restore their apertures to their natural state; neither was there any other method of knowing the singularity of this disorder, than by opening the carcass.

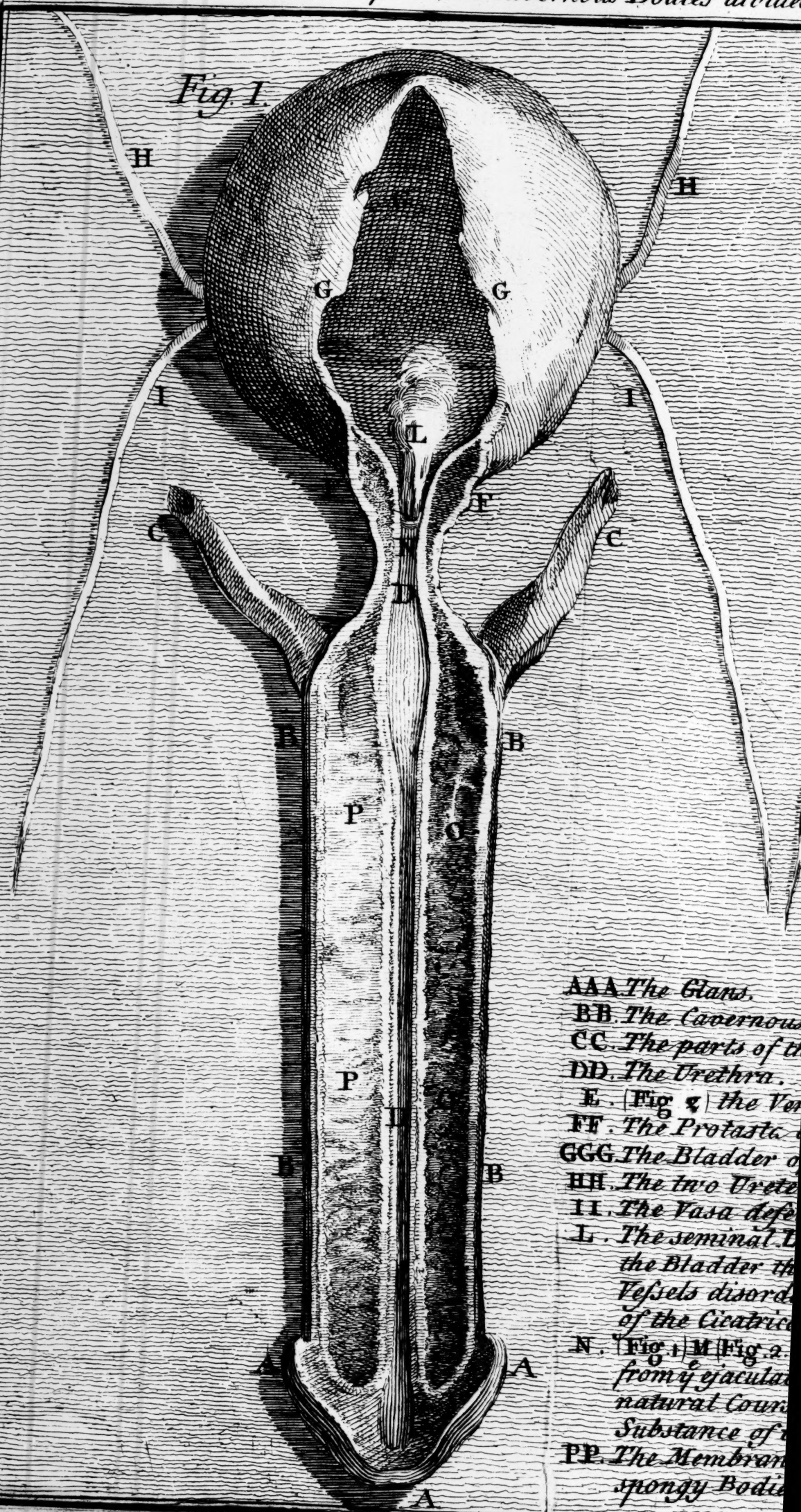
This observation, which proves the impossibility of removing certain obstacles which oppose the natural emission of the semen, also evinces, that the direction of the course of this liquor is a necessary, tho' not the only, condition to favour its ejaculation. It is sufficiently known what use the texture of the various plans of muscular fibres, situated round the roots, and even part of the length of the penis, is of, in order to press the glands and seminal vessels, by which means the semen is convey'd into the urethra, and thrown out in a jet from the aperture of the glans.

The suppleness and spring of the vessels, cel- lules, and fibres which enter the composition of the *corpora cavernosa*, are also conditions necessary for the ejaculation of the semen.

The description of all these muscles, and the mechanism of their motions and action, which belong to the animal œconomy, are not the subject of

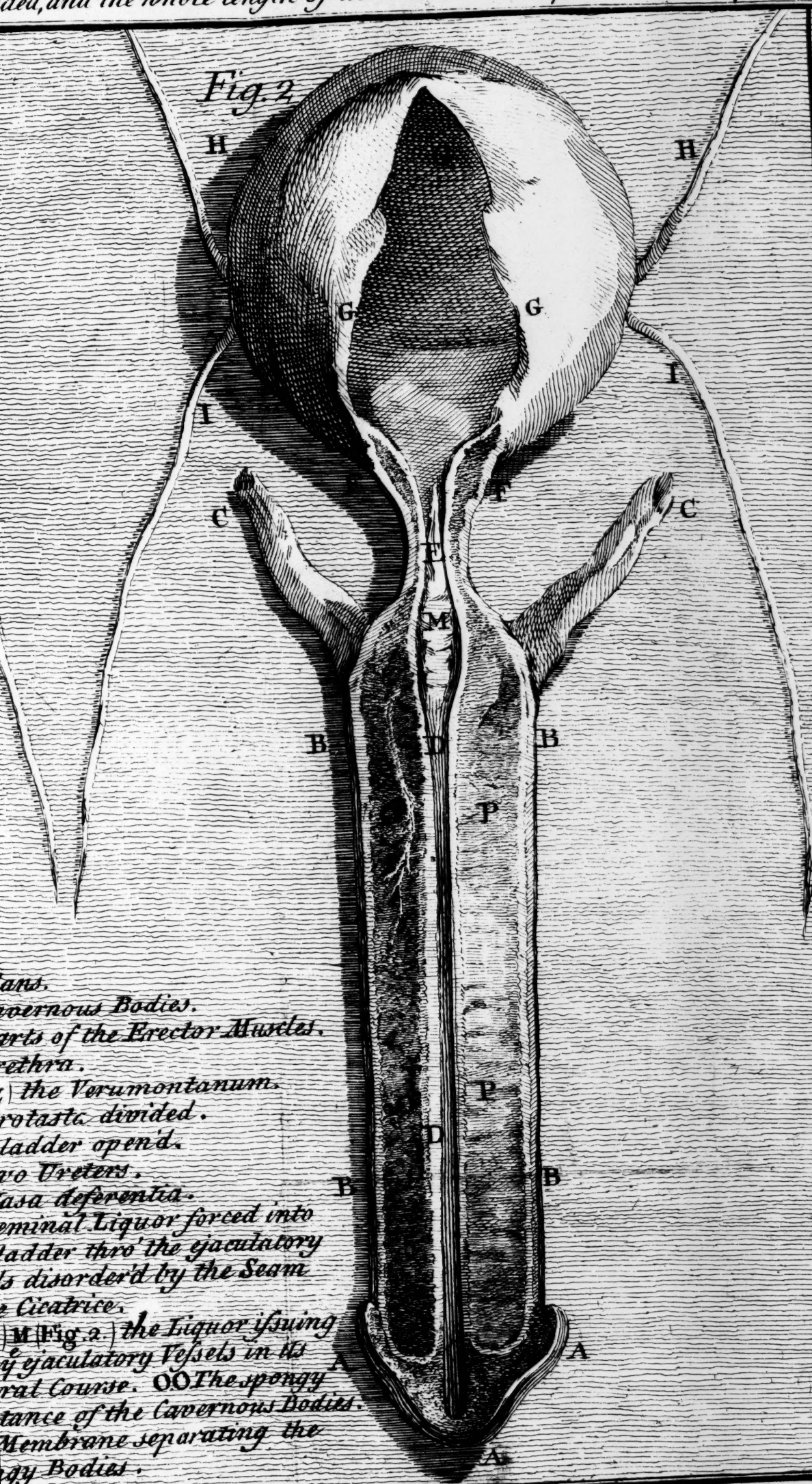
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Fig. 1.



- AAA The Glans.
- BB The Cavernous
- CC The parts of the
- DD The Urethra.
- E. (Fig. 2) the Vasa
- FF The Prostate
- GGG The Bladder of
- HH The two Ureters
- II The Vasa deferentia
- L The seminal Duct
- the Bladder the
- Vessels disorder
- of the Cicatrice
- N. (Fig. 1) M (Fig. 2)
- from the ejaculatory
- natural Course
- Substance of
- PP The Membrane
- spongy Body

Fig. 2



ans.
 cavernous Bodies.
 parts of the Erector Muscles.
 urethra.
 the Verumontanum.
 rotastis divided.
 bladder open'd.
 two Ureters.
 Vasa deferentia.
 seminal Liquor forced into
 bladder thro' the ejaculatory
 is disorder'd by the Seam
 Cicatrice.
 M (Fig. 2.) the Liquor issuing
 by ejaculatory Vessels in its
 natural Course. OO The spongy
 substance of the Cavernous Bodies.
 Membrane separating the
 spongy Bodies.

corpora cavernosa, are also conditions necessary for the ejaculation of the semen.

The description of all these muscles, and the mechanism of their motions and action, which belong to the animal oeconomy, are not the subject of

of this *Memoir*. We must only observe, that these particular organs are subject to hard tumors, which resemble a kind of knots or ganglions, which reach sometimes, in form of garlands, from one end of the *corpora cavernosa* to the other. When this happens, the penis is not strait during erection, but is on the contrary full of gibbosities which incurvate and disfigure it. If the erection be very strong, it is sometimes accompanied with pain; and though there is an effusion of the semen, through the expulsive vessels, as lively and perhaps as sensible as in the natural state, yet the semen is not discharged from the penis, but oozes in form of a froth, thro' the aperture of the glans; and this froth, if it may be so called, does not begin to appear till a long time after feeling the impression of the internal ejaculation, which is the function of the ejaculatory vessels, because the liquor is only weakly protruded to the glans, in consequence of the impotence or want of action in the organs which perform this office.

A man of forty eight years of age, who was in the same case, came to consult me, after having been three years under the management of physicians and surgeons of reputation, who had used all the external and internal remedies generally employ'd in hard and indolent tumors. Every thing that could be thought of, was used without success, except mercurial remedies, which had not been tried. Though the patient had only had one slight venereal taint in his youth, and assured me he had in a month's time been cured of this disorder by a skilful surgeon, yet I imagin'd that these indurations might be venereal, or that, without being so, they might yield to mercury, as a powerful resolvent; but, at that time,

II. Observation, by the author, on a fault of ejaculation caused by hard tumors form'd in the *corpora cavernosa*.

time, I repos'd more confidence in that remedy than it deserv'd.

After a long regimen, baths, and other preparatory remedies, I order'd him frictions; these were used according to the strictest rules, so that the patient was put in a copious salivation, receiv'd a large quantity of mercury, and continued the use of this remedy as long as those do who are daily cured of the most inveterate and obstinate poxes by its means.

Upon his quitting this treatment he began to use milk, by which his health, which was in some measure impaired by the mercury, was perfectly re-established; but the indurations of the penis remain'd such as they were before, and even made some advances afterwards.

Here then is also an instance of a defect of ejaculation depending on the *corpora cavernosa*, and not only, as in the preceding case, opposing the ejaculation, but also a perfect erection; it did not yield to any of the remedies employ'd.

I have seen numbers of persons who have had these kinds of indurations in different parts of the *corpora cavernosa*, but never met with any so considerable as those I have now described.

I never observed that these indurations oppos'd the free course of the urine, except in strong erections, which may indeed of themselves hinder the evacuation of the urine; but these tumors always cause some change, both in the erections of the penis, and in the external ejaculations of the semen.

It seems natural to think, that the strangulations of the urethra, which incommode the course of the urine, prove also an obstacle to the ejaculation of the semen, since these two liquors have one common road. It sometimes happens, however, that persons attack'd with a re-

2d kind of faults
in the ejaculation,
caused by hard tu-
mors in the *corpo-
ra cavernosa*.

ten-

retention of urine by strangulations of the urethra, ejaculate the semen thro' the aperture of the glans with entire liberty. In this last case, it must necessarily happen that the strangulation must be lodg'd near the beginning of the urethra, towards the neck of the bladder, and that the apertures of the expulsive vessels must be free; for when the strangulations are on this side of these apertures, the obstacle must of course be common to the urine and the semen.

If one of these indurated tumors be situated towards the middle of the right *corpus cavernosum*, the penis, instead of being erected in a right line, will describe an arch, whose curvature will be on the right side; whereas, on the contrary, if the induration be on the left side, the curvature will be on the same.

If the ganglion, garland, or induration be in that part of the *corpora cavernosa* which lies towards the perinæum, the penis will be incurvated downwards; but if the induration be in that part of the *corpora cavernosa* which corresponds to the os pubis, it will be bent upwards.

The incurvation is always on that side where the disorder lies, the reason of which is probably this: The erection depends on the dilatation or inflation of the cellules of the *corpora cavernosa*. If these are inflated equally, the one becoming no larger than the other, they will equally concur to the same action, and the erection will be made in a right line. But if an induration or desiccation in any portion of one of the *corpora cavernosa* hinders the dilatation of the cellules of that portion, this *corpus cavernosum* will, in that portion, be constricted, indurated, or dried, and there will be a depression in that place, which will be the center of the incurvation. This disorder, which is not rare among men advanced in years, especially those who have

in-

indulged themselves too much in venery, is also frequently the consequence of venereal disorders, as we shall now shew. I have seen a great number of persons, who, with evident signs of a pox, had at the same time similar indurations; but upon treating them with mercurial frictions, I have observ'd that all the venereal symptoms were dissipated, and the patients perfectly cured, tho' not of the indurations of the *corpora cavernosa*, which generally remain'd in the same state as before.

The resistance of these indurations to mercury, makes me imagine that, with respect to their cure, we may place them in the rank of certain remains of venereal diseases, such as ring-worms, wandering or fix'd pains, and gleans or gonorrhœas, which resist mercurial frictions, and all other specifics against the pox, and which, when curable, are only to be cured, afterwards, by other remedies, appropriated to each of these particular disorders. The frictions carry off the venereal virus, which, during its presence, hinders these disorders from being cured by the remedies very proper for them. It would be in vain to attack them before this virus is extinguished, but when it is once destroy'd, these remedies may produce their effect, and dissipate the disorders for which they are exhibited.

If what I have already observ'd on three occasions, is confirmed by a series of observations, I have reason to believe that the waters of *Baréges* may be the true specific for these indurations, and that the tumors of this kind, which I had look'd upon as incurable, because they had not in the least yielded to all the remedies tried, would not perhaps have resisted these waters; the indurations of this kind which fell under my care generally resisted every thing but these waters.

These indurations are neither painful nor dangerous, but by incommoding the erection, and
hinder-

hindering the ejaculation, prove causes of sterility. These surely are inconveniencies of sufficient importance to induce us to discover and publish a remedy for them.

I labour'd long for the discovery of such a cure, having in vain employ'd emollients and resolvents of all kinds. The only remedy, which sometimes, tho' very rarely, procur'd any relief, was mercury, especially in frictions. Seeing a great many persons, to whom I had order'd remedies for this disorder, averse to continue them, I grew weary myself of prescribing them to my new patients, because I had so often used them without success. Though I had in vain employ'd the waters of *Balaruc*, and those of the two *Bourbons*, I imagined that these of *Baréges* might be more efficacious, and accordingly found a favourable occasion of making a tryal.

III. Observation, by the author, on a fault of ejaculation, caused by indurated tumors formed in the *corpora cavernosa*, and cured by the waters of *Baréges*.

A man of sixty years of age, who stood in need of the waters of *Baréges* for an old wound, consulted me also about indurations similar to those I have mentioned, and situated where the roots of the *corpora cavernosa* join towards the pubes, in order to form the penis. These indurations, whose extent could not be perfectly known because of their depth, extended a large inch on this side of the union of the os pubis, and there so constring'd the *corpus cavernosum*, that in erection the penis form'd an arch crooked upwards to the superior part of the pubes. In strong erections, there were certain moments in which the patient felt painful dilacerations near the indurated part. Besides this fault of erection, the indurations hinder'd ejaculation, and the semen spurted inwardly, as in the case of the man mention'd in the first observation, and made

its

its exit through the urethra in nature of a froth, after the erection was somewhat diminish'd.

While the patient was under a course of these waters for his wound, he had them pour'd on the induration, by which means, it was considerably diminish'd in one season. This first sign of success engag'd the patient to continue the same remedy, so that by repeated pumpings on the part with it, during the next season, the induration was resolv'd, the erections resum'd their former state, and the semen was ejaculated in a natural manner.

IV. and V. Observation, by the author, on the same defect cured by the same remedy.

This example determin'd me to order the waters of *Baréges* to two other persons labouring under the same misfortune. These patients had never had any venereal disorder, and the waters performed a perfect cure on both.

VI. Observation, by the author, on the same.

A man of fifty-five years of age, who, with similar indurations of the penis, had symptoms depending on former venereal disorders contracted in his youth, was encouraged by these instances of success to have recourse to the said waters for his indurations. He used the bath to no purpose; for the indurations and other venereal symptoms augmented to such a degree, that three months after his return there was a necessity for employing mercurial frictions, by which means all the venereal symptoms, except the indurations, were perfectly cur'd. After the patient was recover'd, I advis'd him to return to *Baréges*, where he used the bath, and return'd perfectly cur'd of the indurations, which had resist'd the same remedy so long as the blood was infected with the venereal virus.

I thought this last observation might authorise me to rank certain indurations of the *corpora cavernosa* among these disorders, which, though venereal,

nereal, do not yield to mercury alone, but are cur'd by particular remedies, when the blood has been purified by mercury, and which, on the contrary, resist the same remedies when exhibited while the blood is infected with the venereal virus.

ME.

MEMOIR XV. By M. PETIT.

On the same Subject.

I Have been frequently consulted by persons who complain'd of no other disorder, than that of not ejaculating the semen thro' the urethra in the time of coition; so that, tho' they had almost all the sensations and motions which naturally accompany ejaculation, there was nothing discharged, and the end of the penis was found dry.

Fault of ejaculation, caused by the shrivelling of the urethra, cur'd by an incision made in that part.

I did not know what advice to give the first person who consulted me in this disorder, but I was unwilling to declare my ignorance, both with a view that I might not lose that confidence he reposed in me, and that I might have leisure to examine a disorder which at that time was entirely new to me: For this reason, the only step I took was to order him to live more regularly than he did. Upon going to visit him next morning, his urine appear'd to me to be very well condition'd; he had an inclination to make water, and did so in my presence. I observed that the urine arriv'd slowly, that the first drops ran down upon the glans, that two jets of urine, issuing from the aperture, described a double spiral in an opposite situation, then a simple curve, and afterwards, the expulsive force being diminish'd, spirals a second time, and ended with trickling along the end of the penis, just as it had begun.

I. Observation by the author on this subject.

That day I only discover'd a shrivelling, or contraction in the canal of the urethra, which I judg'd to be near the neck of the bladder, because the patient found no resistance to his urine, except in that part.

Examination of the disorder.

part. This remark was sufficient to account for the irregular discharge of his urine, of which he did not complain, but it did not discover the cause of the disorder for which he consulted me. Next day I found nothing extraordinary in the urine the patient had discharged during the night; he told me that he had had a nocturnal pollution. Upon ordering him to make water, the urine was much longer before it appear'd, and the irregularity of its discharge was much greater than it had been the day before; which was generally the case the first time the patient made water after ejaculation. He told me, that when he had an inclination to make water immediately after coition, the urine could not be discharged, so that he was obliged to wait for some time. This new observation discover'd to me something more than the former; but soon after I found out the whole of the mystery, when examining the urine he had discharg'd, I saw about a spoonful of glairous matter, which I separated, and found to be semen, that, instead of passing thro' the canal of the urethra, in order to be ejaculated externally, had enter'd into the bladder, and found no way of discharging itself but with the urine. These facts had not been regarded by the patient, who imagin'd that he discharg'd his semen by the anus, because a glairous matter was often evacuated, mix'd with the fæces. But tho' this was not impossible, I had reason to think otherwise; because, for several days, there appear'd to me nothing similar in his excrements, and because, tho' a glairous matter had been found among them, yet those who labour under a difficult discharge of urine, make efforts, accompanied with a kind of tenesmus, which express from the glands of the rectum, a white and glairous matter, which may impose upon us: besides, the semen discharg'd

Fault of ejaculation caused by the contraction of the urethra.

with the urine was so little changed, that it could not be mistaken.

There remain'd, however, some difficulty with respect to this, that the urine, tho' incommoded in its passage, had nevertheless a pretty free course, and that the semen which could not be evacuated in the time of ejaculation, was discharged with the urine, tho' it was neither liquefied, nor dispersed in the fluid.

After reflecting on this phenomenon, I judg'd that, notwithstanding the contraction of the urethra, the urine might readily pass, on account of its fluidity, and the voluntary gradation of the force that propels it; but that the semen, which is viscid, and propell'd with celerity, and the involuntary force which produces the ejaculation, found in this contracted part, an obstacle more difficult to be surmounted; and that the instant of ejaculation, when all these parts are tense and inflated, was a time in which the urine itself could not pass; so that I was no longer surpriz'd that the semen, thus propell'd, instead of keeping the usual road, was forced to regurgitate, and enter into the bladder. I comprehended further, that, tho' the semen, which was afterwards discharg'd with the urine, had lost nothing of its consistence, this happen'd because, instead of being propell'd with celerity and the involuntary force that produces ejaculation, it followed the mild and voluntary impulse communicated to the urine, which gave it time to accommodate itself to the narrowness of the canal, and that it was discharg'd so much the better, because when the patient made water, these parts were not tense, as they are at the time of ejaculation.

I also observ'd that the semen which had enter'd into the bladder was not discharg'd the first time the patient made water after ejaculation, some of it frequently appear'd the second, or even the third time,

time, and always without any change, either in the colour or consistence. But afterwards the urine was discharg'd natural and pure till next ejaculation, and then the semen appear'd again in the same manner as has been described.

After repeating these observations, I no longer doubted of the immediate cause of the disorder. I ask'd such questions as I thought necessary to discover its primitive causes. The patient had never had any venereal disorders, except one clap, of which he had been perfectly cured, and had never perceived any incommodity from it, except that of which he then complain'd, and which he so little regarded in the beginning, that he did not remember whether it had superven'd immediately, or a long time after the cure of the clap; neither was he absolutely sure whether he ejaculated naturally ever since his clap.

Having no suspicion of a venereal disorder, I fix'd my attention on the local fault, which consisted in a shapeless and corrugated cicatrix in the part mentioned.

State of the disorder.

Of this I was assur'd when I endeavour'd to introduce a probe into the urethra, where I found an invincible obstacle. I also in vain attempted to introduce a small wax-candle, and just as I was about to take other measures, the patient was oblig'd to return into *Provence*, so that I saw him no more. However, having married, and being desirous of children, he returned to me about two years after, with a resolution to do every thing I should think proper. He told me, that after his departure from *Paris* he had been order'd to use wax-candles, which had twice produced such retentions of urine, that he would employ them no longer. This induc'd me to make an incision, resembling that in lithotomy; to this I was the rather inclin'd, be-

cause I expected less from the wax-candles, than from the operation. This, without any danger of a return, destroys the local fault; whereas if the wax-candles are corrosive, they produce terrible symptoms; and if they are not, they only dilate the canal of the urethra for a time, while the same disposition to contraction still subsists. Besides, during the time the patient used them, it was impossible to convey them beyond the obstacle. This last circumstance was not favourable for the operation, which is very difficult when the operator cannot introduce a groov'd probe into the bladder.

After having prepar'd my patient, I chose a time in which the bladder was full of urine. I thrust the grooved probe as far as the obstacle, I cut the skin and fat two inches long, I plung'd my bistory in the groove of the probe, and follow'd it to the end, which not being close, gave me an opportunity of passing a groov'd trocar into the bladder; by lowering my hand, and going round the ossa pubis, I reach'd it without danger, and the urine appear'd, when I had retracted the bodkin of the trocar. After having retracted the groov'd probe, the groove of the trocar serv'd to conduct my bistory far enough entirely to cut the contracted part of the canal: then I could easily introduce a small canula into the bladder, where I left it till the canal had suppurated sufficiently. This done, I took out the canula, and introduc'd, thro' the penis, into the bladder, a pipe in the form of an S, by which the urine was discharged, and upon which the cicatrix was form'd. The patient was perfectly cured in a month, both of the operation, and of the disorder for which I had perform'd it. I have made the same operation in almost similar circumstances, and with the same success. Every time I perform'd it for a retention of urine, the patients have recover'd a free discharge

charge of urine, when the obstacle was comprehended in the incision.

Not long ago I perform'd this operation for a retention of urine, and had the good luck to find the true course of the urine, without being guided by the groov'd probe. I follow'd the same method, and the patient was not only speedily cur'd of the operation, but was also freed from two indispositions, which have a near affinity with those which are the principal subjects of this Memoir.

II. Observation by the author, on the same disorder with a retention of urine, cur'd by the same operation.

Fifteen years after, in consequence of a clap, which had been troublesome by an inflation of the hemorrhoidal and adjacent vessels, this patient had discharged his urine with pain, and in a stream so small, that it was a long time before he could empty his bladder, which, thro' impatience, he did not always do. He had so much difficulty in ejaculating, that when the semen arriv'd at the obstacle, it caus'd a kind of pain, and was not discharg'd from the penis till the pleasure was almost at an end. After the operation, his urine was discharged in a very large stream, his semen ejected very quick and free, and what he felt painful in ejaculation, became a pleasure.

Many persons, after claps, do not ejaculate, or, to speak more properly, discharge the semen from the penis, till long after the pleasure is past. If in these the semen does not enter into the bladder, it is because the constriction is near the glans, and because between the *veru montanum* and the obstacle, there is space enough to contain the semen, till the erection ceases, for the semen is not discharg'd till then. Some have so considerable a constriction, that it is more than a quarter of an hour, before the whole of their semen is discharg'd.

Contraction of the urethra cur'd by gently corrosive wax-candles.

I have reliev'd, and even cur'd, many by candles made of linnen, dipt in wax, and rubbed with a small quantity of very fine powder of favin. By this means we bring on a suppuration of the place where the canal is contracted; and when we imagine that the obstacle is destroy'd, we perfect the cure with simple candles made up with burnt cerufs, or candles prepar'd of lint, or the *Nuremberg* plaister.

By these observations we see that these faults of ejaculation are more or less considerable according as the constriction of the canal is greater or less, or more or less remov'd from the *veru montanum*.

We find in the first volume of the *Edinburgh* Medical Essays, an observation on a defect in ejaculation, occasioned by too much vigour, and cur'd by a cooling and moistening regimen.

MEMOIR XVI. By M. LE DRAN.

On an Eye, the lower Lid of which was so reversed as to leave that Part of the White, which ought naturally to have been cover'd, bare.

A Boy of eight years of age had a *fistula lachrymalis*, for the cure of which the operation was perform'd in the province where he liv'd. This operation had not been perform'd according to the rules of art, for the two eyelids, which in a natural state are united at the great angle of the eye, had at this angle remain'd six or seven lines distant from each other. The tears trickled down the cheek, and the under eyelid was reversed at the great angle. Thus the lachrymal point at that eyelid was restricted, and perhaps even both the lachrymal points were useless.

Observation by
the author.

Six years after happen'd another deformity; for in the cellular texture, between the conjunctive and inferior eyelid, was a hard tumor form'd, which increased gradually, till, in the space of three or four years, it became as large as an olive. In this condition the young man was brought to me in the month of July 1739; he was then nineteen years of age; the tumor, which was situated in the thickness of the eyelid, extended from the middle of that eyelid, to the great angle of the eye, where it appear'd confounded with the caruncle, and fill'd the space left between the eyelids. It rose somewhat above the eyelid, which by that means was much more revers'd than before the formation of this tumor. The whole, taken together, produc'd a deformity so great, as to make the young man ashamed of shewing himself.

The

Practical observations for restoring the great angle of the eye.

The first intention I form'd, was to remove the tumor in the thickness of the eye-brow : for this purpose I prepar'd the patient by venesection, and a proper regimen for some days. In order to perform the operation, I plac'd the patient on a chair with a back, and order'd his head to be secur'd by an assistant ; then I laid hold of the tumor with a hook, in order to secure it, and separated it from the conjunctive with a very sharp, round lancet, fix'd in its scales. I detach'd it afterwards from the eye-lid with the same lancet, and remov'd the whole of it, leaving only a small portion of fungous flesh, which appear'd to be confounded with the caruncle.

This remaining flesh bled only for a few minutes, because I order'd the wound to be washed with a gentle aluminous water. During the three first days, I only fomented the eye frequently with a decoction of marshmallows, and afterwards it was moistened with a weak vitriol water ; in ten or twelve days, the wound was entirely cured. During this time, the eyelid being placed at ease, rais'd itself, and was restricted of its own accord, and the cicatrix form'd between the conjunctive and this eyelid, restricted it still more. Thus it only remain'd revers'd at the great angle, from the old cicatrix, to four or five lines on this side of the lachrymal point. This reversion proceeded, as we have said, from the manner in which the first operation had been perform'd. Though the whole deformity was not remov'd, yet I did not touch it for two months, that the cicatrix might have time to become strong.

At the end of that time, I thought it expedient to accomplish what I had begun. My intention was to cut the small edges of both eyelids from the lachrymal points beyond the old cicatrix, to remove
that

that whole cicatrix, and even the small portion of fungous flesh I had left on the caruncle at the great angle. In a word, I had a mind to render all this space bleeding, in order to procure a speedy reunion by future.

I order'd the patient to sit on a chair with a back, in a good light, with his head secur'd by an assistant.

I seiz'd and fix'd the reverse edge of the eyelid with a small pair of pincers, and beginning my incision hard by the lachrymal point, continued it on the side of the nose, not taking at most above a line or two of the thickness of the parts. I did the same to the superior eyelid, terminating the incision, on the side of the nose, at the part where the former ended. In like manner I remov'd all the surface of the space between the two incisions, and so made a triangular wound, of which every side was seven or eight lines in length, from one angle to another.

It was necessary to be frugal of the matter I had to operate upon, and to remove nothing but the surface of the whole; for which reason it was requisite that I should be sure of every stroke of the bistory, in order to cut neither too much nor too little. However, as soon as the parts bled a little, a single drop of blood concealed what I ought to have cut. Then I interrupted the operation, pressed gently on the wound with a piece of dry linnen, and when no more blood was discharged, proceeded to cut. Thus the operation was not speedily perform'd, but the patient was courageous, and willing to be cur'd.

When the operation was at an end, I brought the lips of the wound into contact, and secured them with two stiches, one about two lines from the lachrymal points, and the other between the first stitch and the angle of the wound. I placed
above

above and below the stitches, to sustain the skin, two small slips of linnen, cover'd with a plaister, which made them adhere to the skin; these slips were retain'd in their situation, by some shreds of linnen, cover'd with a proper plaister, which made a kind of dry future.

I order'd the patient to lie on the same side, that, if it was possible, the tears might flow from the small angle of the eye, and not moisten the wound; by means of this precaution, I flattered myself with procuring a speedy reunion of the parts I had secur'd by future; but only the bottom of the wound was in some part united, tho' not its external lips. At the end of two days, I observed a gentle supuration, and remov'd the shreds of plaister, which being moisten'd, adher'd but very little; after which I applied others. Thus I continued to renew my dry future as soon as the plaisters began to be moistened, and at the end of eight days perceiving that the threads of the future were relax'd, I removed them. For three weeks, however, I continued the same dressing, which consisted only in frequently renewing the dry future, in such a manner as that it kept the lips of the wound exactly in contact; and at the end of that time the cicatrix reunited them, so as that there was only a simple scar to be seen. The eyelid is no longer revers'd, having been rais'd by the first stitch, and sustained by the cicatrix.

By these two operations, the deformity was corrected in such a manner, that a person must look at the patient very narrowly, before he observes any mark of it.

MEMOIR XVII. By M. HEVIN.

Abstract of Observations on extraneous Bodies retained in the Oesophagus, or Gullet; together with Remarks on such Means as have hitherto been, or may for the future be employed to dislodge them, either by Depression or Retraction.

AMONG the different extraneous bodies which may be retained in the oesophagus, some may be convey'd to the stomach, and afterwards pass easily thro' the first organs of digestion. Such are those substances which are capable of being soften'd, attenuated or digested in the stomach: such also are those hard and dissoluble bodies, whose form and size may facilitate their passage thro' the intestines. Thus, when it is easier to propel these bodies, than to retract them, we may depress, or thrust them down into the stomach. There are others which, by their hardness, or their angular, unequal, and cutting figures, are capable of irritating, lacerating or dividing the parts they touch, and which, for this reason, ought always to be retracted, if possible, in order to avoid the disorder they might produce, if they were forced thro' another passage. We are however sometimes obliged, notwithstanding this danger, to depress them into the stomach; because we cannot retract them, and because their presence in the oesophagus threatens the life of the patient with imminent danger. In a word, there are

Four cases to be considered.

Such are

1. Extraneous bodies, which may be convey'd into the stomach.

2. Bodies which must be retracted.

3. Bodies which ought to be retracted, but which we are obliged to depress.

4. Bodies which can neither be retracted, nor depressed, nor dislodged.

are bodies swallow'd or stopp'd in the œsophagus, which can neither be retracted, nor evacuated by the natural passages, when they are convey'd into the stomach. This last case is sometimes succeeded by terrible symptoms, in which however surgery is capable of affording considerable relief.

First Case.

Extraneous Bodies which stop in the Oesophagus, and may be pushed into the Stomach.

Extraneous bodies, which may, without producing any bad symptoms, be expelled thro' the first organs of digestion, are principally small bones, which have neither points nor inequalities capable of wounding the stomach and intestines, portions of cartilaginous substances, small coins of gold, silver or copper, leaden bullets, small beads of glass or crystal, nuts which have a smooth surface, portions of flesh, fruits, crusts of bread, and a great many other similar substances. Observations abound with examples of different bodies of this kind lodg'd in the œsophagus, where they have produced terrible symptoms, from which the patients have been freed without any bad consequences, when these bodies have been convey'd into the stomach.

M. Perrotin has communicated to the academy an observation, in which he relates that a man, who had lost all his teeth, swallowed a large crust of hard bread, which remain'd in the inferior part of the œsophagus, where it so exactly stopp'd up the passage of the aliments, whether liquid or solid, that the patient threw them up as soon as he had taken them. This crust could neither be loosened by the violent efforts the patient made to throw up the aliments he swallowed, nor by those arising from the irritation produced

I. Observation, by M. Perrotin, on a large crust of bread, thrust into the stomach by means of a wax-candle.

duced by the crust. Thirty hours were elapsed before the patient applied to M. *Perrotin* for relief. This surgeon, being acquainted with these circumstances, took a small wax-candle, and after having dipp'd it in oil, introduced it into the oesophagus, and very easily convey'd the extraneous body into the stomach.

Gluttonous persons are often exposed to similar accidents, in swallowing pieces of flesh which are not sufficiently chew'd.

Portions of flesh
lodg'd in the œsophagus.

Ambrose Paré * facetiously relates the history of a taylor, who was like to have been suffocated by a piece of an intestine, in endeavouring to have the larger share of a dish of tripe, which he was eating with his comrades. The portion stuck in the middle of the oesophagus, but *Paré* quickly push'd it into the stomach by means of a leek, and some blows of his fist on the back. *Forestus* † relates a nearly similar history; but the symptoms, though troublesome, were not so urgent. A girl swallowed, without chewing, some hard and tough tripe, which stopp'd up her oesophagus in such a manner, that she was three days without being able to convey any thing into her stomach. *Schenkius* || also saw two persons, who were like to have been suffocated by large portions of hard and smoaked flesh, which they had swallowed with precipitation.

Leather, and especially such as is supple, may be also placed among the number of those extraneous bodies, which in their nature are not hurtful, and may be convey'd or push'd into the stomach

Piece of leather
lodg'd in the œso-
phagus, and push'd
into the stomach.

without producing any bad effects. This was the method taken by *Fabricius Hildanus* § to relieve a shoe-maker of *Cologne*, who in laughing had swallowed a piece of leather, which would have suffo-
cated

* Lib. 1. Cap. 2.
§ Cent. 1. Observ. 3.

† Lib. 15. Observ. 28.

|| Lib. 3. Observ. 4.

cated him, if *Fabricius* had not, with great expedition, freed the œsophagus from it. He used a crooked silver probe to thrust it into the stomach, and this piece of leather was not discharged by the anus till more than six months after.

We may also easily conceive that large and solid portions of fruit, not sufficiently chew'd, may very readily be retained in the œsophagus. In a word, *Schenkius* * informs us that a pregnant woman greedily, and almost without chewing, eat very hard green apples, some portions of which remained a little below the pharynx, and render'd the patient greatly in danger of suffocation. We are inform'd by *M. de la Motte* † that a nurse was so imprudent as to give a child of six days old a sugar plum to suck; but the kernel was engaged in its throat, and produced symptoms which render'd the infant's life despair'd of.

All these different bodies of the alimentary kind, which we have mentioned as stopp'd in the œsophagus, generally prove only dangerous by their bulk, but are not, for that reason, the less to be dreaded; for some of them are actually so large, as that they may produce death very speedily.

M. le Dran has communicated an observation, in which he informs us that a man swallow'd a large piece of mutton, which stuck in his œsophagus. The patient retired in order to try to throw it up; the company, not perceiving the accident, thought he had gone out with some other view, so that remaining without any relief he was suffocated. At last his companions, astonished that he did not return, became uneasy, and upon searching

Exrraneous bodies of the alimentary kind, which have been retain'd in the œsophagus, & proved mortal.

II. Observation, by *M. le Dran*, on a large piece of flesh which suffocated the patient in an instant.

* Lib. 3. Observ. 4.

† Tom. 4. Observ. 332.

searching for him, found him dead, leaning against a wall.

*Fabricius Hildanus**, on the same subject, has two remarkable observations, in one of which he gives us an account of an infant suffocated by a piece of cake; and in the other, of a man who at breakfast swallowed a piece of the rind of broil'd bacon, season'd with crumbs of bread, salt and pepper. This piece of flesh was engaged in the pharynx, and forthwith produced violent pains, shiverings, convulsions, and at last death. A similar accident happened to a young man mentioned by *Beckerus*†. This man wanted to swallow a very large piece of flesh; without chewing it; but as it stuck in the superior part of his throat, it forthwith choaked him.

Suffocation by a piece of cake.

By pieces of flesh.

There are a great many persons who voluntarily expose themselves to danger, and who have the fate of that man, who, according to *Wierus* §, undertook to swallow a whole egg, which stuck in the oesophagus, and so strongly compressed the *trachea arteria*, that he was suffocated in a moment.

By a whole egg.

On consulting observers, we shall find that fruits, on account of their solidity, are unquestionably more dangerous than other kinds of aliments. In a word, it is easily comprehended that when they are strongly engaged in the oesophagus, they must necessarily compress the *trachea arteria*, and totally intercept respiration.

By fruits.

M. Puzos informs us that a child, who had received a chestnut, swallow'd it entire; but as it stuck in his throat, it forthwith produced such urgent symptoms, that it was impossible to afford relief

III. Observation, by *M. Puzos*, on the death of a child, caused by a chestnut, which suffocated it.

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* Cent. 1. Obs. 35.
sect. 1. cap. 10.

† *Boneti Med. Sept. de oesoph. affect. Lib. 3.*

§ *De præstig. daemon. Lib. 4. Cap. 2.*

in time enough to preserve the patient's life.

A young boy was suffocated by a pear, which he had thrown up in the air to catch it in his mouth *. A woman died suddenly by swallowing an unripe pear, without chewing it †. A musician, when singing, was suffocated by a fig thrown into his mouth, from some distance, by a thoughtless person ||.

We have already observed that hard bodies, whose bulk and figure permit them to pass easily through the intestines, are not greatly to be dreaded, when they are arrived at the stomach, tho' they may have passed thro' the œsophagus with difficulty; and of this we have daily examples. *Fabricius Hildanus* § relates that a young man swallowed a small bone, which sticking in his œsophagus, caused very violent convulsions, and would have perhaps suffocated the patient, if *Fabricius* had not made the extraneous body descend quickly into his stomach.

Hard bodies which have either passed easily thro' the œsophagus, or which have remained in it with danger, and have afterwards passed easily thro' the intestines.

Bone stopp'd in the œsophagus, with danger of suffocation.

Various hard extraneous bodies swallowed without producing any symptoms, and easily evacuated by stool.

Helvigi † gives us the history of a child of three years of age, who, in playing with some pieces of silver, swallowed two or three of them, which he discharged a few days after, without having been in the least incommoded. He also informs us that he saw another who had swallowed a small key, and some small oblong balls of smooth glass, which were discharged by stool, without producing any symptoms. *Forestus* ** also relates that a certain man swallowed three pieces of money, which were evacuated on the third day with the excrements. We find in *Galen* ||| a fact

* *Sueton & Schenk*, Lib. 2. de suffoc. Obs. 1. † *Rhodus*, Cent. 2. Obs. 50. || *Tryphon* in 1 Græcor. Epigram. & *Varinus & Schenk*, Lib. 2. Obs. 1. § Cent. 1. Obs. 36. † *Boneti* Med. Sept. Lib. 3. Sect. 1. de œsoph. affect. Cap. 10. ** Lib. 15. Obs. Schol. ad Obs. 28. ||| Lib. 3. de facult. natur. 4.

a fact still less remarkable, which however we think it proper to mention. This author then informs us that a person swallowed a piece of money, which passed into the stomach, and was easily discharged by stool. In the *German Ephemerides* * there is an account of a child's swallowing a florin, without having any troublesome symptom produced. In the same *Ephemerides* † there is an example of extraneous bodies, which will perhaps appear somewhat more extraordinary. A child swallowed a gold ring, which remained seven weeks in the stomach, after which it was discharged by stool, neither was the child incommoded during so considerable a time.

The half of a pretty large piece of money, swallowed by a child of twelve years of age, justly merited the attention of *Wedelius* ‖, because this fragment might, by its angles or inequalities, induce frightful symptoms, which it accordingly did, so long as it remained engaged in the oesophagus.

Fragment of a piece of money, which stuck in the oesophagus, and produced violent symptoms till it was push'd into the stomach.

A surgeon having in vain attempted to draw it upwards, at last resolved to push it into the stomach, which he could not do without some trouble. By this means the infant was forthwith cured, and never afterwards felt any incommodity from that cause. The obser-

vation of *Meeckren* § on a child of five years of age, who swallowed a plate of metal, pretty large, and of an irregular figure, seems to be of great importance; since an extraneous body of this form might produce terrible effects. The child's health was not, however, impaired, neither was the evacuation of the plate perceived. The figure of this extraneous body is to be seen in the works of that author.

Plate of metal swallowed without symptoms.

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* Ann. 8. Cent. 3 & 4. Obs. 121. † Dec. 2. Ann. 10. Obs. 6.

‖ *Boneti* Med. Sept. Lib. 3. de oesoph. affect. Sect. 1. Cap. 9.

§ *Obs. Med. Chirurg. posthum.* Cap. 13.

Pieces of lead
swallowed, and
discharged by
stool.

It is less surprising to find, in observators, a great many examples of pieces of lead swallowed without producing any disorder; and leaden bullets are even looked upon as the most common and easy remedy for a *miserere*, or desperate iliac passion. This practice is indeed often dangerous; but tho' I have a bad notion of this remedy, yet I am persuaded that if these bullets are hurtful on such occasions, they are less so of themselves, than on account of the state of the indisposed parts which retain them, and must be wounded by them; so that such bodies are much less to be suspected in other cases. *Forestus** informs us that his brother, when a child, swallowed a flatten'd bullet of lead, which he evacuated by stool on the third day, without being in the least incommoded. A child of five years of age swallowed a pretty large leaden seal, used for marking pieces of cloth. *Wedelius*†, who relates this fact, informs us that this extraneous body produced a violent pain till it fell into the stomach, after which this symptom ceased entirely.

The following fact, communicated to us by M. *Benomont*, ought also to encourage us with respect to these kinds of extraneous bodies. A young lady, of 14 years of age, swallowed one of the leads of a gown sleeve, as broad as half a crown, as thick as three crowns, and of two ounces in weight. This body passed thro' the œsophagus with difficulty, on account of its bulk. The young lady, after the accident, complained to M. *Benomont* of a weight in the region of the stomach. This surgeon ordered her to take now and then a little oil of sweet almonds, and some boluses of fresh

IV. Observation,
by M. *Benomont*,
on a piece of lead
swallowed, and easily
discharged by
stool.

* Obs. Med. Lib. 15. Schol. ad Cbf. 28.
affict. Lib. 3. Sect. 1. Cap. 9.

† *Boneti* Med. Sept. de œsoph.

fresh butter, by which means this extraneous body was on the sixth day evacuated by stool.

Though copper be more to be dreaded than lead, as we shall afterwards observe, on account of the rust or verdegrease which it may contract by its continuance in the viscera, yet it often produces no disorder; and sometimes its malignity manifests itself by very frightful symptoms, which at last are totally dissipated, without leaving the least marks of a bad impression. A man swallowed two copper coins, which stuck in the oesophagus for five weeks, and produced a violent pain, a spitting of blood, and a difficulty of swallowing solid aliments. These symptoms ceased entirely, when the pieces of copper fell into the stomach, where they remained for six months, and were at last ejected by vomit ||.

Pieces of copper swallow'd.

Copper coins lodged for five weeks in the oesophagus, and afterwards six months in the stomach.

A child of three years of age, mentioned by *Widmarkler**, was still more happy; for having swallowed two links of a brass chain, of an inch diameter each, they only produced a pain in passing through the oesophagus, which ceased as soon as they descended into the stomach, neither was it known when they were evacuated.

Links of a brass chain swallowed.

We find from several examples that such bodies may remain very long in the first organs of digestion, without producing any sensible disorder. We have given the history of a man who retain'd two pieces of copper coin in his stomach for six months; and the following observation is still more surprising: A boy of eight years of age discharg'd, by the anus, a copper counter, which

A copper counter swallow'd, and retain'd in the stomach for a whole year.

|| *A Joh. Muleri Thomæ Barthol.*

* *Bonet, med. sept. de œsoph. affect, Lib. 3. Sect. 1. Cap. 9.*

he had swallowed a year before. *Amatus Lusitanus*† says that this counter had no ill effect upon the child.

This fact is very remarkable, because the counter was of copper. It seems, it would have been less surprizing if it had been of gold; however, *Hockstetterus* § relates that a young man afflicted with the tooth-ach, put into his mouth a ducat of *Portuguese* gold, in order to alleviate the pain; but falling asleep he swallow'd the ducat, and upon his awaking could hardly believe that he had done so. However, some months after, his voice became hoarse, and he was so emaciated that he was obliged to have recourse to physicians and surgeons, who could neither feel the piece of gold with instruments nor with their fingers. At the end of two years it was discharged by the mouth, and one of its faces was as white as if it had been rubbed with quick-silver.

A piece of gold which stuck in the œsophagus.

It seems, however, that a considerable long continuance of these coins in the stomach depends rather on some extraordinary circumstances, than on the difficulty which these bodies find in passing the pylorus, in order to be convey'd through the intestines. This remark is confirmed by a great number of observations, and among others by that of *M. de la Motte**, who tells us that a child had swallowed three farthings, which stuck in the œsophagus. This surgeon convey'd them into the stomach by means of a leek, and they were evacuated next day by stool.

Copper coin swallow'd, and discharged very soon by stool.

Industry has in all ages suggested different means to

† Cent. 2. curat. 69. Obs. 332.

§ Dec. 6. Cap. 10.

* Obs. Chir. Tom. 4.

to free the œsophagus from extraneous bodies, which may in all probability be safely conveyed into the stomach; for we find that the antients, as well as the moderns, used sometimes leeks, or wax-candles dipt in oil, sometimes a crooked probe of silver or lead, and at other times a small slip of iron or brass bended, and one of its extremities immersed in melted lead, in order to form a kind of small button: others make the patient swallow a large piece of some aliment, such as the stem of lettuce, a turnep, a piece of biscuit, or a tender crust of bread, without chewing them. Others recommend a dried fig turn'd inside outward, or a plum without its stone or skin. Some also, for this purpose, use a ball of lead, or a large bead, tied to a small cord; a bit of beef, or a piece of new sponge, about as large as a nut, dipped in oil, or some syrup, or cover'd with honey or turpentine, and securely fixed to the end of a strong thread. All these substances, push'd by the organic action of the œsophagus, often carry the extraneous bodies along with them into the stomach.

Means used to convey into the stomach extraneous bodies lodged in the œsophagus.

Many practitioners disapprove of the use of the sponge, because they think it hardly possible that a small portion of so light a substance, tied to the end of a thread, should surmount the resistance made by a body which closes up the passage of the œsophagus.

Remark on the use of the sponge fixed to a thread.

A no less important reflection may, in my opinion, be made on the large portions of aliments order'd to be swallowed on such occasions; for when the œsophagus is possessed by a considerable body which suffocates the patient, these portions will, if they fail to depress the extraneous body, contribute to make the patient die so much the sooner.

Reflection on the pieces of aliments swallowed in order to clear the œsophagus.

The leek, which is easily found every where, and at all seasons, is a very commodious and usual method of depressing extraneous bodies which are but little advanced in the œsophagus. However, some authors think it not altogether sure, because it may be bruised, in bending to accommodate itself to the figure of the pharynx. The violent motions of the œsophagus may also contribute to this inconvenience.

On the use of the leek.

Fabricius ab Aquapendente * prefers to all the other means we have mentioned, the wax-candle dipp'd in oil : but, before we use it, we are to warm it a little, in order to make it easily take the figure necessary to enter into the canal of the œsophagus, without violence. We ought particularly to take care of this circumstance in winter, during which season, the wax becoming soon hard, the candle will be so stiff as perhaps to wound the œsophagus, and, by the irritations it might produce in that part, retard the success of the operation. The best method, therefore, of giving a due consistence and suppleness to the wax-candle, is to soften it a little in warm water or oil.

On the use of the wax-candle.

Albucasis †, in order to convey extraneous bodies into the stomach, made use of a piece of lead, which was thin enough to make it very flexible, and which, in all probability, must have had, at its extremity, a small button, to press on the bodies lodg'd in the œsophagus. *Rbasis* also made use of the same instrument.

Of the leaden probe.

Verduc || proposes a nearly similar instrument, made of silver, or flexible steel, of the size of a quill, almost a foot and half

Of the silver probe.

* Operat. chirurg. Cap. 36.
|| Operat. chirurg. Cap. 25.

† Chirur. Franc. de d'Alechamp. Chap. 32.

half long, and whose ends terminate in a button somewhat conoidal, and as large as a small nut.

Fabricius Hildanus, as we have observed, on these occasions, successfully used a large, crooked, silver probe : he also had recourse to other instruments, both to retract engaged bodies, which only possessed a part of the canal of the oesophagus, and to depress them to the stomach, when they possessed the whole of it. He made use of one, the invention of which he ascribes to *Gautier Herman Ryff*, a celebrated physician and surgeon at *Strasbourg*, and on which he himself made an improvement. But the great disadvantage of this instrument was, that it was made of an inflexible substance, whereas *M. Petit*, as we shall afterwards shew, has invented one which has all the advantages of the former, and several others, without having the defect now mention'd. We shall, in another part, have an opportunity of considering several other means, which have been successfully employ'd in conveying to the stomach such extraneous bodies as are far advanced into the canal of the oesophagus.

Crooked silver probe.

Instrument of *Ryff* improved by *Hildanus*, and perfected by *Petit*.

Remarks on the First Case.

Tho' we are, from daily experience, convinced that the various extraneous bodies we have mentioned, may be convey'd to the stomach, without producing any symptom, yet it is of great importance to advertise young surgeons, that this method is not always the surest ; for we find in the works of practical authors, that these bodies are sometimes retained either in the stomach or intestines, and produce a great many disorders, and even death.

The extraneous bodies, referr'd to this first case, are not always easily evacuated by stool.

There

A portion of an ox's lungs retained in the stomach with symptoms, and thrown up by vomiting.

There are sometimes portions of aliments which pass easily into the stomach, and which, being afterwards thrown up by vomiting, stick in the œsophagus. This accident happens when these portions of aliments are of a spongy substance, which may be easily inflated. *Hollerius* * informs us that a girl, who had filled her stomach to excess of ox's lungs, was by that means afflicted with weight and heaviness about the epigastric region, with frequent nausea, and at last with a considerable vomiting, by means of which, a portion of the lungs she had eaten was thrust into the œsophagus, where it stuck, and produced very terrible symptoms, till it was thrown up by the mouth, with very violent efforts.

A piece of calf's lungs retain'd four months in the stomach, with considerable symptoms.

We may easily conceive that it would not have been proper, in this case, to have repell'd the piece of lungs into the stomach, because perhaps it could not have been discharged thro' the pylorus, and because the patient would have been still exposed to the misfortune she then laboured under; for similar portions of aliments, tho' long retained in the stomach, cannot sometimes be expell'd from it, but by vomiting, and with a great deal of danger to the patient. The same author † evinces this fact by an observation which, on other accounts also, deserves a great deal of attention, because if these portions of aliments remain sometimes long in the stomach, they may by putrefying produce and maintain very troublesome disorders, the principle or cause of which is very difficultly discover'd. A girl precipitately eat a large quantity of calf's lungs, after which she was seized with almost the same symptoms as the former, such as heaviness,

* Scholiogr. ad Cap. 33. Lib. 1. de morb. intern.

† Perocl. ad 8. Lib. 8. *Galen* comp. pharm. part.

vinefs, anguifh, weaknefs, and frequent inclinations to vomit. Thefe fymptoms continued for a long time; but what is particularly remarkable, is, that the girl threw up in vomiting a piece of the calf's lungs which ſhe had eat four months before; for ſhe had eat none ſince that time. This portion of the lungs ſtuck in the œſophagus, and was like to have ſuffocated the patient, but happily a violent effort diſengaged it, and facilitated its diſcharge by the mouth. We muſt therefore perceive that we can only rid the œſophagus of ſuch bodies ſafely by extraction.

Sometimes the portions of aliments which are retained in the œſophagus, or ſtomach, are not only dangerous by their bulk, but alſo in conſequence of the bad qualities which in corrupting they acquire by their continuance in the firſt

Portions of aliments retained in the ſtomach, and become noxious by their depravation.

organs of digeſtion. *Donatus** ſaw a certain caſe of this kind: A man greedily ſwallowed a piece of tendinous fleſh, which ſtuck in his œſophagus, and almoſt totally intercepted the paſſage both of the air, and of the moſt liquid aliments. This extraneous body could neither be retracted nor depreſſed by any means, but became corrupted, and at the end of ſeven days fell into the ſtomach. The patient was freed from his pain, but could not avoid death, which happened on the fourteenth day, and which was attributed to the inflammation, and the long want of aliments, which brought on a total loſs of ſtrength. But the preſence of the corrupted body probably contributed more to the extreme weaknefs and death, than the want of aliment.

Bodies of a conſiderable bulk deſerve a particular attention, when they are form'd of ſuch ſubſtances as can neither be abſolutely diſſolved, nor digeſted in the

Bodies too large to be convey'd into the ſtomach.

ſto-

stomach. Thus a surgeon, who should have been called in the two following cases, and should have depressed the bodies which stopp'd up the œsophagus, and intercepted respiration, would have taken a step much less sure than if he had extracted the bodies. *Habicot* * was ordered by the court to visit a prisoner who was found dead in the keeper's apartment. This surgeon informs us that he found in the throat a large knot of linen, which strongly pressed upon the epiglottis, and in which there was a ring.

The other case is related by *Meeckren* †, who being called to inspect a woman thought to be poisoned, began to examine the parts of the mouth and throat by a *speculum oris*, and forthwith perceived a large portion of cork, cover'd with silver. *Meeckren* knew that this body was an instrument commonly called an *obturator of the palate*. This woman had sustained a great loss of the substance of the palate, and had for a long time used this instrument. The cork had been apparently wore away, or putrefied, and the instrument coming out of the hole fell into the throat, and so compressed the larynx, that it suffocated the patient before she could have any relief.

Remarks on bodies which may convey'd into the stomach.

We may easily perceive the danger there is in depressing bodies of this nature, and of so considerable a bulk; for we ought to be afraid lest, after having convey'd them to the stomach, they should not afterwards be discharged from it. In a word, there have been smaller bodies seen, which, by being retained in the stomach, have proved mortal.

Kirckbringius § informs us that a child of five years of

* *Question chirurgicale sur la Bronchotomie*, Chap. II.

† *Obs. med. chirurg.* cap. 22.

§ *In spicileg. anatom.* Obs. 1.

of age died by swallowing a very small coin, which totally closed up the pylorus. The same accident happened to another child, and produced the same effect. This child died after violent vomitings, and the coin was also found engaged in the pylorus |||. Adults are also exposed to the same danger, as we find from various examples recorded by authors †.

Bodies retained in the stomach, which have proved mortal.

It seems surprising, however, that a single piece of coin should produce so fatal effects, when we find in observators that a traveller, being afraid of robbers, swallowed six ducats without any symptoms, and a few days after discharged them by means of a clyster *; that another, with as great ease, discharg'd nine louis d'ors which he had swallowed †; and that two other persons, each of whom had swallowed an hundred louis d'ors, had only gripes or colics, which indeed were very violent, and lasted till these extraneous bodies were discharged, which was done gradually by means of clysters ||.

Though these facts are highly instructive and important, yet they seem generally to be most regarded, when they happen to persons of note and distinction. The Royal Academy of Inscriptions has not forgot to relate one of the same kind in the elogy of M. *Vaillant*, a physician, and celebrated antiquarian. After having been taken by a pirate, and retained prisoner at *Algiers* for four months and half, this physician was, in returning to *France*, chased by another pirate of *Tunis*. On seeing this new misfortune, that he might not lose all, as he had done in the other vessel, he swallowed fifteen golden me-

||| Ephemerid. Germ. Cent. 3 & 4. Obs. 121.

† *Wedelius Boneti* Med. Septentr. de œsoph. affect. Lib. 3. Sect. 1. Cap. 9. *Fab. Hild.* Cent. Obs. 35. Ephemerid. ann. 4. Cent. 10. Obs. 82.

* *Mich. Mangeti* Biblioth. Chirurg. de deglut. vitii.

† *Ephem.* Cent. 10. Obs. 34.

|| *Petr. Borei.* I. Cent. 4. Hist. 25. & *Job. Mich. Februs*, in Cent. 3. *Epist. Medic. Barth.* 69.

medals which he had about him. *M. Vaillant*, however, having escaped the pursuit of the pirate, made it his business to find out the method of freeing his stomach from the burden he had committed to it. As nature did not seem disposed to afford him any relief, he began to think himself in danger, and consulted the faculty of medicine on his case. Every physician proposed a different remedy, and the patient not knowing which of them to take, left himself entirely to the disposal of nature, who acted her part so well, that she discharged half of them when he arrived at *Lyons*, where he sold them to a virtuoso, promising to let him have the rest as soon as he could; and, to his great satisfaction, he was able to fulfil his promise that very night.

It is, however, to be observed that hard bodies, tho' of a small bulk, may, by their number, when collected into one place, become fatal: such was the collection of fruit-stones mentioned by *Binnigerus* §, who informs us that a man had a very hard tumor on the hypogastric region, complained continually of intense pains of the whole abdomen, felt frequent motions and rumblings in his intestines, and at last died, having only been able to use a little liquid aliment for three years. The observator, upon opening the body, found the colon sphacelated and open. This intestine was distended by a collection of the stones of plums and cherries, which weigh'd more than three pounds. There were also found in this intestine forty leaden bullets, which the patient had swallowed at different times, in hopes to be relieved. In the *Ephemerides* * we are told that a man died after a long constipation, occasioned by a collection of cherry-stones, which he had swallowed some time before. *Stalpart Vanderwiel* † saw a man who, in

Stones of fruits
collected and stop-
ped in the colon.

§ Cent. 2. Obs. 20.

† Cent. 1. Obs. 64.

* *Myrrhen*. Dec. 3. ann. 9 & 10. Obs. 211.

in a similar case, was more happy, since he had swallowed a large quantity of cherry-stones, which he did not discharge till six months after, without feeling the least inconvenience from them.

We know but little of the bad effects of musket bullets taken into the stomach. We

read, however, in the *German Ephe-*
merides ||, that a man, only by swal-

Symptoms caused
by small shot.

lowing small shot, was afflicted with very intense pains of the stomach, like those incident to tradesmen who are daily employ'd in working lead, and sometimes also similar to those produced by aliments or remedies in which litharge, sugar of lead, or any other preparation of lead are ingredients. These pains cannot be appeased by any remedies; however, there are few examples evincing that accidents happen similar to the case we have now related; for we have sometimes observed, in the aperture of the bodies of such persons as had, during their lives, eat a great deal of venison and wild fowl, that a large quantity of small-shot has been collected in the cellules of the intestines, and particularly in the appendix of the *cæcum*, tho' these persons never felt the least inconvenience from that circumstance. We can more easily comprehend the cause § of the symptoms which happened to a girl, who having cut several plates of lead into small portions, swallow'd them, by which were produced violent pains in the region of the stomach, weakness, anguish, an obstinate constipation, and at last death. It is sufficiently obvious that the angular figure of the small portions of lead had a greater share in these disorders, than the malignity of the metal.

Rings, whose stones are full of sharp and rising angles, as also those rings that are made with rough and raised work, may fret and irritate the parts they

Symptoms produ-
ced by swallowing
rings.

touch,

touch, and by that means produce dreadful symptoms. *Zacutus Lusitanus* * informs us that a man, in his frolics, swallowed a gold ring of raised work, with a small engraved head; this ring produced an obstinate dysentery, which did not cease till the patient had discharged that extraneous body; tho', during the whole time, oleous and lubricating medicines, assisted by some purgatives, had been frequently used †.

Stalpart Vanderziel ‡ informs us that he had seen more terrible effects produced by a ring which stuck in the œsophagus of a child of two years old: this accident was succeeded by an extreme difficulty of deglutition, anguish, and violent pains. The parents in vain made a great many attempts to retract the ring, but the symptoms continued, and the child died at the end of six weeks. Upon opening it, the ring was found engaged in the œsophagus.

From these observations, it is natural to conclude that we ought as much as possible to endeavour to retract these extraneous bodies, whose bad effects we have seen; because, when we succeed in doing so, we are freed from all fears; whereas, when we convey them to the stomach, we are not absolutely sure of the event: neither ought we, in forming our judgments in this last case, to forget the symptoms which these bodies may produce, when they are convey'd into the stomach.

Second Case.

Of such extraneous Bodies as, when stopp'd in the Oesophagus, ought to be retracted.

If those bodies, which may be convey'd into the sto-

* Lib. 2. de Medic. princip. histor. 84.

† This fact is also related by *Ætius*, Tetrab. 3. ferm. 1. cap. 46. and by *Galen*, Lib. 3. de facultat. nat. 4.

‡ Cent. 1. Obs. 22.

stomach with least danger, sometimes produce effects so troublesome as those we have mentioned, we ought much more to dread the disorders which may be excited by hard bodies which stop in the oesophagus, and which, by their angular, unequal or cutting figures, are capable of irritating, cutting, or lacerating the parts they touch; so that we cannot be too attentive to the danger there would be in clearing the oesophagus, by forcing such bodies into the stomach. We may to this class of extraneous bodies refer needles, pins, sharp stones of various fruits, irregular portions of glass or stone, fragments of steel, iron, or any other metal, thorns, ears of grain, large fish-bones, portions of bones, which may wound by their inequalities or points, and a great many other bodies of the same kind.

Extraneous bodies which ought to be retracted.

Symptoms produced by bones.

M. Mesnier was called to see a woman, who, in eating some soup, had swallowed a splint of a bone of beef, about an inch long, as large as one's finger in the middle, sharp at both ends, and about half a finger-breadth in thickness. This portion of bone stuck in the right side of the pharynx, where it produced a violent pain. M. Mesnier tried to dislodge this bone, by a piece of lead fix'd to the extremity of a large wire, which he several times introduced into the oesophagus; but all his efforts only procured such a removal of the bone as made the pain cease almost entirely, tho' there remained a certain painful titillation, which the patient felt for four months when she swallowed any aliment. This state was afterwards followed by a continual fever, a difficulty of breathing, an intense pain all along the right side of the oesophagus, and a kind of rattling of the air in the throat, so that she seem'd

V. Observation, by M. Mesnier, on a splint of a bone of beef, which remained ten months in the right side of the pharynx.

to be in imminent danger. M. *Mesnier* blooded the patient three times, and order'd her the remedies indicated in inflammations of the breast. When the symptoms were somewhat assuaged, she expectorated pus without coughing, and gradually recover'd her health, only the rattling noise remained, together with a slight pain in the throat, but she easily swallow'd all kinds of aliments. At last, after ten months were elapsed, she threw up the bone in coughing and sneezing with a great deal of violence. M. *Mesnier* saw this bone a very short time after its discharge, and informs us that it was corroded, ill smell'd, and as yet moist with the pus. He order'd the patient a deterfive gargarism, which terminated the cure.

Fabricius Hildanus * relates an observation, in which we find similar symptoms produced by a bone which stuck in the throat. Several attempts were in vain made both to retract and convey it to the stomach; as it had many acute angles, it excited intense pain, with an inflammation of the neck, accompanied with a fever, a delirium, convulsions, and a very great difficulty of deglutition and respiration. All these symptoms were succeeded by an abscess of the throat; the bone was discharged with pus from the mouth on the seventh day, and the woman was cured. The same author † speaks of a man who was like to have been suffocated by a small, but pretty thick and triangular bone, which he swallow'd, and which stuck in the œsophagus near the first vertebra of the back. This small bone excited violent pains, so that an attempt was made to disengage it from the œsophagus by means of a leek, which did not succeed. *Hildanus* informs us that next day he retracted it with an instrument of his own invention, of which we shall speak by and bye.

Observers have often remark'd, that the bones
which

* Cent. 1. Obs. 32.

† Cent. 1. Obs. 36.

which stick in the oesophagus are at last disengaged, because the caries or putrefaction, which, as we have seen in the fifth observation, seizes these bones, and destroys the points which have enter'd into the flesh.

Fabricius ab Aquapendente * informs us that a great many attempts were made to retract a bone which stuck in the oesophagus, but all to no purpose, because it was very much forked, and had strongly engaged itself by its points. This bone became moist, tender, and was at last broken into several pieces, by the efforts which the woman made to expel it, and at last she threw the whole of it up in coughing.

We are so exposed to this kind of extraneous bodies, that observators abound with examples, which evince the danger arising from the presence of bones stopp'd in the oesophagus. *Gockel* † gives us a frightful description of the terrible symptoms produced by a bone which a man had swallow'd. We find in the same observator ‖, a case still more fatal, for it proved mortal to the patient. Another man, who had swallowed a pig's tooth, had a less cruel fate; but was for a long time reduced to a very deplorable condition. *Bartholin*, who relates this fact §, says that the patient fell into a marasmus, and that, during the two years this bone remained in his body, he was tormented with violent pains of the hypochondria.

The bones most subject to stick in the oesophagus are those of fish, and when they are large, they often produce very fatal effects. Of this we find a very memorable example in the Memoirs of the Royal Academy of Sciences †; and authors relate a great many observations which would prove the same thing, if it was necessary. We shall, however,

Z 2

give

* Operat. Chirurg. Cap. 39. † Cent. 1. Conf. 30. ‖ Dec. 5. Obs. 6.
§ Ephemerid. Dec. 1. ann. 2. Obs. 74. † Ann. 1716. p. 183.

give a few of them, to make people remark the different disorders which these bones may produce.

A woman, in eating some cod, swallow'd a pretty large bone, which passed into the throat, almost without causing any pain. She only felt for two days a little uneasy titillation, when she swallow'd solid aliments; but, on the third day, the pain became more violent, and was succeeded by a fever, and a

VI. Observation, by the author, on the bone of a cod thrown up with pus, from an abscess which it had produced in the œsophagus.

difficulty of swallowing even liquid aliments. Various venesections repeated one after another, in the first days, did not hinder the progress of the symptoms, which only ended by a suppuration in the pharynx, which disengaged the extraneous body, and it was discharged from the mouth, with a considerable quantity of pus, on the seventh day.

Dodonæus * also informs us that he has frequently seen very great inflammations and abscesses occasioned by fish-bones lodg'd in the canal of the œsophagus. In *Platerus* † we find a much more unfortunate case, which is, that of a child, who, in eating some carp, swallow'd some large bones, which stuck in one of the sides of the œsophagus, and produced very intense pains, with an inflammatory tumor, which suffocated the patient.

Needles and pins appear less dangerous than the bones we have mentioned, because, being only sharp at one end, and form'd of a ponderous substance, they in their motions naturally tend to turn themselves in such a manner that their biggest end is generally convey'd first into the œsophagus by its weight. Now when they take this determination, the parts thro' which they pass are but little exposed to be wounded by them. It even frequently happens that when their points are engaged, they produce almost

Symptoms produced by needles and pins.

no

* Observat. Medicin. Cap. 17.

† Pr. Tom. 1. pag. 427.

no symptoms, especially when they are small, and when the parts in which they are lodg'd are but little sensible, and incapable of resisting them. These small bodies, when very sharp and smooth, as we shall afterwards observe, make their way insensibly thro' the parts, especially in the texture of the fat, without producing pain, or any other bad effect: but circumstances are not **always** so favourable.

A woman swallowed two pins, which stopp'd in different parts of the oesophagus and stomach. *Wierus* || informs us that this woman was afflicted with intense pains, gripes and colics, and that the pins were some time after discharged by the anus. In the *Acts of Berlin* * we find the history of a very obstinate vomiting of blood, occasioned by pins which the patient had swallow'd. *Segerus* † mentions a young man, who, to testify his love to a lady, swallow'd three needles; this piece of folly cost him pretty dear; for the needles produced frequent faintings, which were sometimes accompanied with convulsive motions. It was a whole year before the patient discharged these extraneous bodies by stool, and was freed from the symptoms they produced. The same author informs us that a man, who swallowed two large needles, had violent pains of the stomach, but that the needles were discharged by stool six days after.

Needles and pins are more to be dreaded when very large; since, in this case, they often produce very formidable symptoms. *Fabricius Hildanus* § informs us that a young girl, who had inadvertently swallow'd a pretty large pin, discharged it by stool on the fourteenth day: this pin remained for three days in the stomach without causing any disorder; but from the third day till its evacuation, it produced insupportable pains about the region of

Z 3

the

|| *Schenkii* Lib. 3. Obs. 4. * Vol. 1. pag. 53. † *Boneti* Med. Sept. Lib. 3. de oesoph. affect. sect. 1. cap. 8. § Cent. 1. Obs. 34.

the pylorus, succeeded by a burning fever, accompanied with a phrensy and terrible convulsions, which ceased not till the pin was discharged.

A young lady *, of eighteen years of age, carelessly swallowed some pins which she held in her mouth; some days after the accident, she felt violent pains in several parts about the abdomen; some of these pins were evacuated by stool, and others, penetrating the intestines, were discharged from different parts of the abdomen. The pains were succeeded by a dysentery, accompanied with violent gripes, syncope, and frequent convulsions. The lady was surprisngly extenuated, and died at the end of three weeks.

A needle, which a man swallowed, produced as fatal effects. *Schenkius* † informs us that it pierced by degrees thro' the membranes of the stomach, penetrated the proper substance of the liver, and made the patient die consumptive. *Forestus* ‡ relates the history of a girl whose fate was no better: she swallowed a large needle, which stuck in her throat: attempts were in vain made to retract it, so that the patient fell into a consumption, of which she died soon after.

We find, in the same author, a fact which seems to have some relation to the former. He informs us § that a barber, upon examining a woman's throat with a probe, let the instrument fall into the œsophagus. He made several fruitless attempts to retract it, but it fell into the stomach, and occasion'd an excessive extenuation, which proved mortal two years afterwards.

It now remains for us to give some examples of the fatal effects produced by various other kinds of extraneous bodies, such as sharp stones of fruit, frag-

* Bayle, *Nouvelles de la Republique des Lettres*, Octobre 1685, article 10.

† *Nereti Nerutii*, Med. Florent. Obs. *Schenkii*, Lib. 3. Obs. 10.

‡ Lib. 15. Obs. 27.

§ Lib. 25. Schol. ad Obs. 23.

fragments of pipes or glass, splinters of swords, pieces of wood, or knives. A child playing with nut-shells, swallowed a few fragments of them, which suffocated it *Raigerus* *, who relates this observation, also informs us that he saw the same accident happen to another child, from a plum-stone; so that we need not be surpris'd to find in *Schenkius* † that the stone of a peach, which a man had swallow'd, produced very considerable symptoms.

We have many examples of the terrible consequences produced by pieces of tobacco-pipes, which have broke in the mouth. A man smoaking tobacco, fell upon his face; his pipe broke, a piece of the stem stuck in the bottom of the gullet, and produced a great hemorrhage, succeeded by an inflammation, and an external tumor, which suppurated under the ear. *Muys* || opened the abscess, and found the piece of pipe which had occasioned all these symptoms. *Stalpart Vanderwiel* § preserved a piece of tobacco-pipe about the third of a finger in length, which had occasion'd the death of a man. He was smoaking, it seems, and fell upon his face, like the other; the pipe broke, and a piece of it enter'd the muscles of the neck; several attempts were made to draw it out, but to no purpose; the fragment of the pipe excited a very acute pain, a tumor with inflammation, a violent fever, with great restlessness, all which put an end to the patient's life on the third day.

Symptoms produced by fragments of pipes, and other bodies.

It is however to be observed that, in these two cases, the violence with which these bodies were plunged into the flesh, and the wound which they made, must have been the principal cause of the terrible symptoms they produced.

Z 4

M. Honde

* *B. neti* Med. Sept. de oesoph. affect. Lib. 3. Sect. 1. C. 7.

† Lib. 3. Obs. 4.

|| *Prax. chirurg. rational.* decad. 3. Obs. 6.

§ *Cent. 1. Obs. 21.*

VI. Observation, by M. Honde, on the fragment of a spindle, which enter'd the muscles in the bottom of the throat.

M. Honde has communicated to us an example of these extraneous bodies forcibly engaged in the throat, and exciting pretty considerable symptoms, tho' not of any fatal consequence. A woman of 66 years of age, sitting on a three-legged stool, and unravelling a spindle, fell with the stool while she had the spindle at her mouth; falling on her face, the spindle broke, and one of its ends enter'd with violence into the bottom of the throat, and penetrated very far into the muscles of the neck. The wound produced by this extraneous body was succeeded by a slight hemorrhage; the patient forthwith felt very acute pains, and breathed with much difficulty, for which reason she was convey'd to the hospital. M. Honde examined the throat, where he discover'd a very small wound, which still bled, but could not perceive the extraneous body. The patient, who could not then speak, made him understand, by signs, that a fragment of the spindle had enter'd the neck in the back part of the throat. The surgeon, on touching the hinder part of the neck, perceived the extraneous body under the teguments, in the middle part of the neck and left lateral part of the third vertebra, counting from below upwards. The symptoms, which were pressing, determined him to extract the portion of spindle with all expedition. Accordingly he called a consultation of several surgeons, in their presence made a longitudinal incision, and discover'd the extraneous body, which he extracted with his pincers. He laid hold of it by a small hook of brass wire, which was at the end of the spindle, and had first penetrated into the flesh. This extraneous body, join'd with the iron wire, was three inches in length. As soon as the operation was performed, the pain was considerably diminished, the respiration became much freer, the patient

recover'd the use of her speech, and the incision was dress'd as a simple wound. M. *Honde* had the patient several times blooded, and prescribed a detensive vulnerary gargarism. Neither a fever nor any other symptom superven'd, the divided fibres of the muscles of the neck were brought into contact, and the patient was cured of both wounds in eight days.

We may easily conceive that fragments of glass or other bodies of the same kind, which are of an irregular figure, cannot be swallowed without danger.

Symptoms produced by pieces of glass, crystal, or diamonds.

Cardan *, *Bartholin* †, *Francus de Frankenau* ‡, *Cæsalpinus* §, *Platerus* †, and others, give us various observations concerning disorders produced by swallowing pieces of glass. These bodies are so pernicious, that pulverised diamonds, commonly called the *powder of succession*, is looked upon as one of the rankest poisons, and is said gradually to tear and corrode the parts it touches, by the cutting inequalities of its particles. The same malignity is ascribed to crystal, and even to common glass.

In *Fabricius Hildanus* ‖ we are informed, that some of the king's guards, after a great debauch of wine, bruised their glasses with their teeth, swallowed the fragments, and all died soon after. *Cardan* §§ informs us that a foolish woman mix'd powder'd glass with pease, and that two persons who eat of it became dropical. The same author ** says that he has seen several nuns who had eat glass, and by that means died after the most terrible symptoms.

* Lib. 2. Contradietion. Med. Tr. 5. Contradiet. 9. † Cent. 5. Hist. 66.

‡ Satyr. Med. Satyr. 16. de hyalophagis, p. 302, 322, 323.

§ Lib. 3. Cap. 29. apud *Zacchiam*.

† Pr. Tom. 2. Cap. 11.

‖ *Mangeti* Biblioth. Chirurg. de ventric. morb. Tom. 4. p. 123.

§§ Contr. Med. Lib. 2. Tr. 5. Contr. 19.

** Lib. 1. de venen. Cap. 1.

ptoms. *Zacutus Lusitanus* †† informs us that a man, who had swallowed three rough diamonds, died hectic, after a very obstinate dysenteric flux.

The reader will perhaps be surpris'd at our giving some examples of the disorders which may be produced by pieces of sword-blades, knives, and other similar instruments, when swallow'd. But tho' we do not relate such observations with a design to shew that such instruments received internally are dangerous; yet we judge them proper to point out the various symptoms which so hurtful bodies may produce, and to describe these symptoms such as they really were. Besides, these observations may make young surgeons sensible how much they ought to be on their guard against a multitude of relations, where 'tis said that similar bodies have been swallow'd without having produced any symptoms. In short, they will perceive, by the observations we are about to relate, that tho' these histories were true, yet they ought never to make them overlook the dangerous circumstances of persons who have swallow'd such pernicious instruments.

A maniac voluntarily swallowed several extraneous bodies, and among others, nails, pieces of wood, flints, and splinters of knives, which he bruised between his teeth. After some time, he began to feel very acute pains and agonies in all the internal parts. These symptoms were succeeded by a spitting of blood, a difficult respiration, and a very ardent fever. Among other ailments, he felt a very intense pain in the right groin, where was a very apparent external tumor. At last he died of a marasmus, after a very long diarrhoea. *Rothius** says, that the patient himself had order'd in sport, that his body should be open'd after his death;

†† Prax. admir. Lib. 2. Obs. 18.
Obs. 179.

* Miscellan. curios. ann. 1672.

death; and when his orders were executed, all the viscera of the abdomen were found in suppuration; there was in the right groin, at the beginning of the colon, a large collection of pus, and a fragment of the blade of a knife, a longer and sharper portion of which was also found in the rectum near the anus.†

Langius || relates that a peasant, who had swallowed an oblong and pointed piece of wood, four splinters of a blade of a knife, and two sharp and denticulated portions of iron of an irregular figure, was tormented with such cruel pains in the hypochondria, as tempted him to kill himself. Upon opening him, these extraneous bodies were found in his stomach.

It is not surprizing that such a number of so hurtful instruments should occasion so violent torments, since it is certain that one alone may prove mortal. *Walruts* § says, that upon opening the body of a woman, to discover the cause of her death, there was found in her stomach a knife with a blade four inches long, which had pierced the stomach about three finger breadths from its superior orifice, the point coming an inch and half out of the aperture it had made.

We shall afterwards have occasion to relate many examples of knives, scissars, pieces of swords, and other similar instruments, which have been swallow'd, and afterwards made vent for themselves in different parts of the abdomen.

Means to be used for retracting extraneous Bodies stopped in the Oesophagus.

It is generally much more difficult to retract extraneous

† This observation is also related by *Burkhardus*, miscel. curios. an. 1672, Obs. 178; and by *Binningerus*, Cent. 5. Obs. 7. It is also related very circumstantially in *Konig. Boneti Med. Sept. de imo ventre*, Lib. 3. Sect. 1, Cap. 17; and in *Boneti sepulchretum anatomicum*, Pract. Lib. 3. Sect. 14,

|| Lib. 1. Epist. 38.

§ *Ephemerid.* Cent. 9 and 10, p. 152.

Extraction of extraneous bodies which have stop'd in the œsophagus.

traneous bodies stuck fast in the œsophagus, than to convey them to the stomach; so that it is of the last importance to know the different means which have hitherto been employ'd, or may be properly used to retract such bodies; for often an instrument which has been used with success in one case, proves of no service in another.

Four methods of extracting these bodies.

These different methods may be reduc'd to four classes, to the first of which we shall refer the fingers and pincers; to the second, the various species of hooks and rings; to the third, the different manners of using the sponge; and to the fourth, the different remedies which may, by exciting vomiting, coughing, and sneezing, procure a discharge of these bodies.

First method, by the fingers and pincers.

When extraneous bodies are not very far engag'd in the œsophagus, but may be touch'd, we ought to use our fingers, or pincers, rather than any other instrument. *M. de la Motte** has, in similar cases, often used this method with success. A pin, two inches long, had stuck in a woman's throat; *M. de la Motte* could easily touch this pin with his fingers, and thought he had no occasion for any other instrument to extract it. However he found a great deal of difficulty, because the pin was engaged at both ends; he was therefore obliged to push it at one end, in order to disengage it at the other, after which he easily drew it out with his fingers. A footman, who had a middle-siz'd jaw-bone of a pike stuck in his throat, applied to the same surgeon. The bone was plunged in such a manner, that *M. de la Motte* thought he should be obliged to use a crow's-bill, in order to remove it; but having laid hold of it with his fingers, he extract-
ed

ed it by pulling strongly. The same surgeon relates, that he was called to the assistance of a young lady, who had half a crown sticking in her throat. He perceiv'd, by touching it with his fingers, that it was strongly engag'd; in short, he could neither extract nor depress it. However, at last, by moving it from place to place, he extracted it by his fingers, tho' not without difficulty, and with great violence.

If the extraneous bodies, though but little depressed, be out of the reach of the fingers, or if the fingers are not sufficient to extract it, we must have recourse to pincers, especially those of the crooked kind, which are of great advantage in similar cases.

A man swallowed a pretty long piece of bone, sharp at both extremities. This bone was fixed at the top of the œsophagus, and several unsuccessful attempts were made to push it into the stomach with a leek. M. de la Borde was

VIII. Observation, by M. de la Borde, on a bone extracted from the œsophagus by means of pincers.

called, and examined his throat, but not being able to discover the extraneous body, he introduced a leek, in order to discover its situation. He found it at the lower part of the pharynx, and wanted to dislodge it with the leek; but perceiving that it was strongly engaged in that part, he thought proper to attempt its extraction, and accordingly slipt a pair of pincers to the place where the bone was lodg'd; he laid hold of it with the blades of his instrument, and jogg'd it from right to left in order to disengage it. At last, after several half-turns with his instrument in different directions, he extracted the bone; but the patient suffered a great deal in this operation, and there superven'd a pretty considerable hemorrhage, which was no doubt owing to the dilaceration of the sides of the œsophagus, by means of the sharp ends of the bone.

Lach-

*Lachmund**, also, used pincers with good success in extracting a piece of an iron pin, which a child had swallow'd, and which had stuck in its throat. For three days, various means had been tried in vain to extract this body, and even a violent emetic had been exhibited, but to no purpose. *Lachmund*, at last, thought it proper to introduce into the throat, crooked pincers, which he, with a great deal of difficulty, plunged as far as the extraneous body, and when he was within reach of it, he seiz'd it strongly in the chaps of his instrument, and pull'd it out.

When we cannot reach the extraneous body, either with our fingers or pincers, we must try the other methods we have mentioned. The hook, or crotchet, seems most proper when these bodies afford hold enough, and especially when they are not very far down in the œsophagus. It may also sometimes succeed when the body has descended pretty low: of this the *Edinburgh Medical Essays* give us a proof, which we shall afterwards take notice of, when we have related some examples of the use of this instrument in more ordinary cases.

IX. Observation
by M. Perrotin,
on the vertebra of
a neck of mutton,
extracted by a
hook.

M. *Perrotin*, in an observation communicated to the Academy, informs us that a man begg'd him to remove a bone which he had swallow'd with a spoonful of soup, and which had remain'd in his œsophagus. This bone was an impediment to his speech, and produced an intolerable pain. M. *Perrotin* order'd the patient to be placed in a chair, with his head laid backwards: he convey'd his finger as far as possible into the pharynx, but could not perceive the extraneous body. He introduced a crooked silver probe into the œsophagus, and plunged it to the

* *Boneti Medicin. Septent. Lib. 3. de œsophag. affect. Sect. 1. Cap. 12.*

the bone; with this instrument he made several fruitless attempts to push the bone into the stomach. He had recourse to several other means, but the resistance of the bone was so great, that he resolved, instead of depressing, to extract the bone, which was a far better method. For this purpose, he form'd a hook of iron wire, which he slipp'd by the side of the bone, in such a manner as by drawing it up afterwards to seize the bone in the crotchet; then ordering the assistants to hold the patient's head very fast, he slowly drew forth the hook, and the bone along with it.

M. *Perratin* was very much surprized at the largeness of the bone, for it was a whole vertebra of a neck of mutton. We may be sure he was not sorry that his first attempts had not succeeded; for it was to be dreaded, that so considerable a bone would have stopt in the oesophagus against the ringlet of the diaphragm, or that falling into the stomach, it could not have passed thro' the pylorus, or thro' the canal of the small intestines; at least it is almost certain that it would have been stopt by the sphincter muscle of the anus, and by that means have produced terrible symptoms.

The same surgeon, in a similar case, informs us, that he made many attempts to depress a large bone of a cod, which was strongly engaged by both ends in the oesophagus; and that not being able to succeed, he had recourse to the instrument he had used so successfully before. With a slender piece of wire he made a hook like the former, but the bone made so great a resistance, that the hook yielded twice. This circumstance obliged him to have one stronger made by a workman; with this he laid hold of the extraneous body about the middle, and though he drew it out very gently, it caused a great deal of pain, and an effusion

X. Observation, by
M. *Perrotin*, on a
large bone of a
pike extracted by
the same hook.

sion of blood. When it was extracted, *M. Perrotin* judg'd by the extremities of the bone, which were ting'd with blood, that they had enter'd very deep into the flesh. He justly ascribes the reason of this to the efforts the patient made to get rid of it, and especially to the frictions which the patient's husband had made on her throat, with a view to make the extraneous substance give way.

The advantages of the hook to which *M. Perrotin* had recourse in the two cases we have mentioned, are established on a multitude of observations, in which we see that this instrument has been employed with much success. *Riverius** informs us, that attempts were made in vain to expel the bone of a hog cover'd with glutinous flesh, which had fallen into the œsophagus. A surgeon made a long hook of wire, introduced it pretty far into the œsophagus, and in retracting it laid hold of the bone, which made a great deal of resistance, but he extracted it by drawing the hook with force.

It is easily observable, notwithstanding these instances of success, that there is danger in using hooks formed in the manner we have mentioned, because the sharp end of such an instrument may enter and tear the sides of the œsophagus. *M. Petit*, a surgeon of *Nevers*, has communicated an observation to the academy, in which he shews, that this accident has really happened.

A curate of the diocese of *Nevers* had swallowed a bone with his aliments: this bone, which probably was sharp, stuck in his throat. As there was no body in the country to whom the patient could apply, the pain and uneasiness he was in, obliged him to send to a small village for the means of relief. He fell into the hands of a person little acquainted with surgery,

XI. Observation, by *M. Petit*, on an attempt made to extract a bone with a hook, which wounded the œsophagus.

* Cent. 3. Obs. 71.

ry, who undertook to extract the bone by a piece of wire crook'd in form of a hook. Upon plunging this into the throat, and attempting to extract it, he felt a resistance, which made him imagine that he had laid hold of the extraneous body. He therefore forcibly retracted the hook, but instead of the bone, he brought away a piece of flesh, or rather a portion of the side of the oesophagus. The wound produced by this instrument produced very terrible effects, since the patient was confined to his bed for a year, and was never perfectly cured. The bone, which retain'd the same situation as before, maintain'd a very great difficulty of deglutition, and being dislodged some weeks after, fell insensibly into the stomach. *M. Petit*, with several other practitioners, judiciously observes, that this dislodgment is generally procur'd by time, as we have already said, in consequence of a caries, or putrefaction, which destroys the points or asperities by which the bone is retained.

We may easily avoid this accident, by forming a hook, with a small round or oval button at its extremity, in order to hinder it from pricking or laying hold of the sides of the oesophagus. In fact, we find, in the *Edinburgh Medical Essays**, that *M. Stedman*, a surgeon at *Kinross*, used a similar hook to extract a considerable bone, engag'd, as we have elsewhere observed, in the inferior part of the oesophagus. A young man had precipitately swallowed a large fragment of the bone of a cow's head, in a spoonful of broth. He made great efforts to make it descend into the stomach, and was almost suffocated before it arrived to about an inch and an half above the *cartilago ensiformis*, where, towards the left side of his breast, he felt the most intense pain. The author of the observation, who at that time was called to the patient,

A a

makes

* *Tom. 1. Art. 16.*

makes some reflections on the insufficiency of the usual means employed on such occasions, and on the inconveniencies that would have attended an attempt to plunge this bone, which had stuck in that part of the œsophagus where it is straitened by the ringlet of the diaphragm. He quickly determined to get a long, flexible steel probe, terminated by a little round button. M. *Stedman* introduced this instrument below the part of the œsophagus, where the patient felt the pain; he says, he was obliged to introduce the hook fifteen times, turning it different ways, in order to seize hold of the bone. At last he laid hold of it, and extracted it. This operation was succeeded by some effusion of blood, but the patient had afterwards no other symptoms, than such as might depend on the irritation caused by the bone, and by the various attempts made with the instrument. The figures of the bone are exhibited in the *Essays* we have quoted.*

Fabricius Hildanus used a hook that was flat, and very large at one end, so that this extremity, whose edge described a somewhat crooked line, form'd in some manner a kind of grater or scraper, with which that surgeon loosened the small sharp bodies that were engaged in the sides of the œsophagus. He also informs us ‖, that there was brought to him a young girl who had a pin of a moderate length engaged across the pharynx, towards the root of the tongue; that he tried to no purpose to take it between his nails, and had no other way to extract it but with the blunt hook we have described. We find the figure of this instrument in the observations of *Hildanus*.§

Though we have observed that it is dangerous to use hooks with crooked points, yet there are cases where-

* Tom. i. Plate 3. Fig. 1 & 2.

§ Tab. 13. Fig. 7.

‖ Cent. 6. Obs. 34.

wherein these may be useful, especially when the bodies are large, of so soft a substance that the hook may enter them, and so tenacious that it may be surely engaged in them. Such was the large knot of linnen before mentioned. Such also we may reckon large portions of membranous and coriaceous flesh, and several other substances. But in such cases the probe must not be too much bent, that its point may be the more easily convey'd into the extraneous body.

In order to avoid these inconveniencies arising from the point of the probe in the cases we have mentioned, M. *Petit* has invented one which is form'd of a flexible rod, or stillet of silver, or of two silver wires twisted together in a spiral form; the extremity is crooked, and forms a small ring to lay hold of the extraneous body. See PL. IX. Fig. 11.

*Stalpart Vanderwiel** relates, from *Nuck*, the success of an instrument of the same kind. A soldier in eating some broth swallowed a large bone, of a very irregular figure; he tried to make himself vomit, but to no purpose, though he took a great deal of oil, which made the bone descend much lower. This dislodgment of the extraneous body exposed the patient to imminent danger of suffocation for an hour; the surgeon who was called had no instruments, so that the patient was obliged to make one himself with a large piece of iron wire, which he plated, except in the part of the curvature, where it formed a sort of oval ring, sufficiently large to engage the bone. This he himself introduced into his oesophagus, and at the sixth attempt he succeeded, and in an hour and a quarter after the accident happen'd, laid hold of the bone, which he extracted with much pain, and many efforts, for the bone lacerated the oesophagus, and produced bilious vomitings, and a considerable hemorrhage.

A a 2

* Cent. 2. Part. 1. Schol. in Obs. 23;

morrhage. The figure of this instrument is represented in *Stalpart Vanderwiel*.

M. *Petit* has also, with the same view, invented an instrument, the success of which is much more certain, on account of the multiplicity of rings with which it is furnished, and one or other of which may apply itself to the extraneous body, and lay hold of it. This instrument is form'd of a rod of flexible silver, or whale-bone, to the extremity of which several small rings are attach'd, so that they may present themselves on all sides to the surface of the sides of the œsophagus. See PLATE IX. Fig. 12.

M. *de la Haye* used an almost equivalent method of extracting a pin from a woman's throat. Many attempts were made to extract this foreign body, but none of them succeeded; and the different means used only augmented

XII. Observati-
on, by M. *de la*
Haye, on a pin ex-
tracted from the
œsophagus.

the patient's pain. M. *de la Haye* informs us that he was greatly perplexed with respect to the choice of the instrument he ought to use, because several had before been tried in vain; but at last he invented a particular one, which succeeded. He took a long and very flexible silver probe, which was the longest of his algælies: Thro' the ring at the end of this probe, he passed several pretty fine threads, and formed several loops all along these threads. When he had introduced this probe into the œsophagus beyond the extraneous body, he retracted it gently, turning it from left to right, in order to secure the pin in the loops form'd by the thread; and this ingenious expedient had all the desired success.

It is easily observable that the instrument used by M. *de la Haye* must be very commodious, especially when it is required to extract small bodies, such as fish-bones, needles and pins; for the ring at the extremity of the probe, tho' furnished with thread,

is

is but of a very small compass, and consequently easily introduced into the œsophagus, and passed by the side of the extraneous body, without any danger of dislodging or depressing it, which may happen with the sponge. This instrument has still another advantage, which is, that when we retract the probe, the thread, by pulling it against its natural grain, is enlarged, and gently touches all the sides of the œsophagus, by which means, and by turning it different ways, it may lay hold of small and smooth bodies lodg'd in that canal.

We must, when we use this instrument, make a small hook on the extremity we hold in the hand, lest the probe should escape from our fingers, and fall into the œsophagus. This is a just caution, since it has often happened that probes, and other instruments of a similar nature, have slipp'd from the hands of surgeons, both in probing such wounds as have penetrated into cavities, and in conveying such instruments into the throat; as it happen'd in the last case, to the barber, who in examining a woman's throat, let the instrument fall into the œsophagus. This body, which was eight inches long, fell into the stomach, and produced such terrible symptoms as proved mortal.

The deceased M. *Marechal* supplied the defect of these instruments by another, which was at hand, and which, though much more simple than the others, yet succeeded very well. A man swallow'd a very large bone of a pike, which stuck in his throat. M. *Marechal*, who was ready to mount his horse, and who had no other instrument than a whip in his hand, made a loop on the cord at the end of the whip, which he dipp'd in oil, and introduced into the œsophagus beyond the extraneous body, which

XIII. Observati-
on, by M. *Mare-
chal*, on a large
bone of a pike,
extracted from the
throat by the end
of a whip of
whale bone.

he had laid hold of in the loop, and extracted it forthwith.

To the fourth class of means used for extracting extraneous bodies, we have referr'd the different manners of employing the sponge. This method is principally expedient in cases where the extraneous bodies possess not a large space in the œsophagus; for, in order to succeed, it is necessary that the sponge should slip by the side of the body, and pass beyond it, that it may extract it when drawn back. Thus we ought always to take our measures, as much as possible, from the largeness of the extraneous body, in order to make the piece of sponge only of such a bulk, as that it may easily pass beyond the extraneous body. We ought also to use a very dry sponge, according to the observation of some authors *, and to let it remain for some time, if the patient can endure it, that it may, by the humidity, be so distended as to fill the diameter of the œsophagus. It is easy to conceive how useful this precaution must be to the success of the operation.

Fourth means ;
the different man-
ners of using the
sponge.

M. *Brouillard* informs us that a peasant, in eating some soup too greedily, swallow'd a large pin, which stuck in his œsophagus. It forthwith produced a violent pain, which was succeeded by an inflammation and fever. A surgeon in the neighbourhood being called, in vain used a wax-candle and other means, in order to make the body descend into the stomach. M. *Brouillard*, being call'd, conjectur'd, from all the means tried, that the pin was so situated that it could not be convey'd to the stomach; and that, on the contrary, it was necessary to extract it. For this purpose he took a piece of sponge, about two inches long and one inch thick ;
about

XIV. Observation
by M. *Brouillard*,
on a large pin ex-
tracted with a sponge.

* *Platerus, Bonet. Polyalth. Lib. 4. Cap. 3.*

about the middle of this he had a very long and thick wax'd thread; he separated the two ends of this thread, and passed one of them into the canal of a thick leaden probe, and placed the other externally along the side of the probe; by drawing these threads, he exactly secured the piece of sponge against the extremity of the probe: he dipp'd this sponge in oil of sweet almonds, and plunged it into the oesophagus by means of the probe. When he understood, by a sign which the peasant made, that it had passed beyond the extraneous body, he kept the sponge in its place by means of the thread, which was free, he retracted the probe, united the threads, twisted them about his hand, and strongly extracted the sponge, which brought the pin along with it. This operation was very painful to the patient, who had like to have been suffocated during the operation; but the expedition with which it was performed, deliver'd him very soon from the danger in which he was. He discharged a great deal of blood; but a few venesections in a short time dissipated all the symptoms.

This observation seems susceptible of some reflections; for it seems that the leaden probe, used by *M. Brouillard*, is attended with fewer advantages than the whale-bone generally used in similar cases; but perhaps *M. Brouillard* only used the leaden probe for want of the whale-bone. It is however proper to observe that the whale-bone is always more sure than the leaden probe, because it is more flexible. We do not find this advantage in the leaden probe, because it has neither that strength, nor that elastic suppleness which can accommodate it to the canal of the oesophagus, in the different motions or efforts, without being bent into an improper figure, or even perhaps without breaking; since it has frequently happen'd that such probes

Reflection of *M. Courtois*.

have broke in the bladder, where they are not exposed to so violent motions.

We may also remark that oil does not seem proper for being put on the sponge, because it may hinder the sponge from imbibing the humidity it may find in the œsophagus, or which may be convey'd to it after it is introduced, by making the patient swallow water; which practice has often succeeded, and is recommended by several authors†.

Remarks on the use of the sponge.

We ought also to attend to the manner of fixing the sponge, because, by tying it with the thread, it is hinder'd from imbibing the humidity, and being dilated. It would therefore be better to pierce the sponge in several places with the thread, so as to fix it securely to the extremity of the whale-bone.

I am also of opinion that, in order to reap the greater advantage from the distension of the sponge, and to introduce a larger portion of it with the greater ease, it would be proper to include it in as small a bulk as possible, and set it at liberty when it is beyond the extraneous body. We may, in this case, expect that the sponge, becoming three times larger than at its introduction, may more surely carry off the extraneous body.

The covering which is most proper, and with which the surgeon is generally provided, is a bit of gold-beater's-skin, very fine, and somewhat moistened; this is to be laid on the sponge when very dry, and well compressed. There must be in this skin one or two long and strong threads, the ends of which are to be twisted about the extremity on which the sponge is fixed. When this sponge is introduced beyond the extraneous body, we are to pull the threads so as to tear or displace the skin, and by that means set the sponge at liberty. We may, if we think proper, and if it is possible, make the pa-

† *Platerus, Bonet. Polyaltb, Lib. 4. Cap. 3*

patient swallow some water, that the sponge may be the more distended, and consequently bring away the extraneous body more surely. But in this case I am of opinion that a flexible wire of iron, tin or silver, such as that used by some practitioners ||, or a hollow probe, like that used by M. *Brouillard*, would be more proper than any other instrument, which might hinder the deglutition of the water.

We may, instead of the skin, use a very fine silk ribbon, wide enough to cover the sponge; this ribbon must be wound once or twice very tight about the sponge, and once about the splint, and its end secured with the finger on the iron wire, for fear it should be relaxed. When the sponge is introduced into the oesophagus, and passed below the extraneous body, we are dexterously to remove the ribbon from above the wire, and afterwards draw it strong enough to displace the ribbon from above the sponge, by which means the operation is perform'd.

The ribbon may also be attended with another disadvantage, especially when we are to manage small bodies, such as needles and pins, which prick and exasperate the sides of the oesophagus; for the motion communicated to it in disengaging it from the splint and sponge, may displace or pull off these bodies, and make them fall on the sponge, which will afterwards bring them away. If at the first attempt we fail to bring away the extraneous body, we must make a second, or even a third or fourth, using each time a larger sponge. These reiterated efforts ought not at all to frighten us, since we have before seen, from many examples, that the most celebrated surgeons have, with other instruments, been

|| *Job a Meeckren*, Obs. Med. Chirurg. Cap. 13. *Mangeti* Biblioth. Chir. de guttur. affectib. *Fabric. Hildan.* Cent. 1. Obs. 36. *Vendelius*, *Boneti Medic.* Sept. Cap. 9. Lib. 3. de oesoph. affectib. *Raigerus*, idem. Cap. 7.

been obliged to employ a great deal of time, and repeat the same operations over and over.

We ought always, if possible, to use new sponge, because that which has been often wetted, usually becomes hard, and is therefore less proper to be compressed into a smaller bulk; whereas that which is new is very supple, and may be easily confined. However, if new sponge cannot be had, we must soften the old, by soaking it frequently in water, and then strongly expressing it.

Almost all authors, who have wrote on this subject, prescribe a method of using the sponge, which appears convenient enough in cases where the design is to make the patient swallow some water, in order to distend the sponge. This method consists only in fixing the sponge to a sufficiently strong thread; but I hardly believe that this design can be put in execution, unless we should use the method employ'd by M. *Brouillard*, to cause the sponge to be convey'd into the œsophagus, when it is obstructed and irritated by any angular or acute body.

Moistening the sponge in order to inflate it, a precaution which I believe useless when the sponge is used in the manner we have mentioned, can at best be only used when the extraneous body is of such a bulk as to make such a resistance to the return of the sponge, as is sufficient for its displacing and removal; for when the extraneous body is small and smooth, such as needles and pins, a wet sponge would slip more easily over these bodies than one that is dry; so that, in this case, our method of using the sponge must be very advantageous.

To be the better assured of the success of the sponge, we may, by means of four splits of whale-bone, keep it more strongly dilated. For this purpose we must cleave the end of the whale-bone, to which the sponge is to be fix'd, into four branches, which are to be separated and kept asunder by a
piece

piece of brass wire, or a large thread, to be interwoven with the branches near the part where they unite. Four holes are to be made in the sponge for receiving these four branches, to which the sponge must be fixed, and fixed in each of them by a small notch, or groove, made for that purpose. Contract these branches and the sponge, as we have said, in order to introduce them into the oesophagus, beyond the extraneous body, after which we must let them loose, that the branches before straitened may separate by their spring, and keep the sponge strongly dilated; these branches must not however be too stiff, lest they should by their separation wound the oesophagus. We may also, when we are to extract pins, fish-bones, and other similar bodies, affix to the whale-bone several loops of thread, of different lengths, join'd to each other, and which will descend round the sponge. They are to be included with the sponge, when we intend to introduce it into the oesophagus. If it is necessary to this introduction, that the sponge and branches of the whale-bone should be compressed into a very small compass, we must use a very coarse and porous sponge, capable of compression to the eighth part of its bulk. But in this case it is necessary that the branches of the whale-bone should be pretty strong, in order to secure the effect of this sponge, which is of itself incapable of making any great resistance.

Vanborne *, and most of the modern physicians, for the reasons already given, prefer a split of whale-bone for conveying the sponge into the oesophagus. This instrument is thought to have been invented by *Willis* † for the following case:

A certain man had for a long time been subject to throw up almost all his aliments, whether liquid or solid, soon after he had swallowed them. He
used

* *Spongiâ officulo balœnæ per se satis flexili alligatâ*, *Micro-Techne*, S. 20.

† *Pharm. rat. part. 1. sect. 2. Cap. 1.*

used various remedies to no purpose, till at last, being over-power'd by hunger, he eat till his œsophagus was filled up to the pharynx. But the superior orifice of the stomach, not giving passage to the aliments he had eaten, he soon threw them up. *Willis*, to whom the patient applied, conjectured either that there was a palsy of the inferior part of the œsophagus, or that a tumor compressed the mouth of that canal. As the patient was ready to die of inanition, *Willis* had recourse to this expedient, which succeeded: He made a long, small and very flexible split of whale-bone, to the end of which he firmly tied a piece of a sponge with a thread. As soon as the patient had taken some food, he introduced this instrument into his œsophagus, and by that means removed the obstacle at the superior orifice of the stomach, and facilitated the passage of the aliments into the cavity of that organ. The patient had used this instrument sixteen years at the very time *Willis* wrote this observation. We find a like case in the observations of *Stalpart Vanderziel**.

Sampsonius † also used a split of whale-bone in an almost similar case, tho' without success. A woman, who had for a long time been afflicted with a great difficulty of deglutition, came to him for relief. This practitioner, in order to discover the cause of the disorder, introduced a long and flexible piece of whale-bone into the œsophagus, in which he found an obstacle that the instrument could not surmount, tho' he repeated his attempts several times, and used considerable force: a few months afterwards the patient died of hunger. *Sampsonius*, on opening her, found the canal of the œsophagus cartilaginous from the region of the clavicles to the stomach.

* Cent. 2. part 1. Obs. 27.

† Miscellan. curios. ann. 1613. Obs. 170. & *Boneti* Medicin. Sept. Lib. 3. de œsoph. affect. Sect. 1. Cap. 1.

mach. The diameter of this canal would hardly admit a hog's bristle.

The reader may see *Willis's* instrument in *Heister's* Surgery, Table 21. Fig. 10.

Several practitioners use a catheter, to which they fix a sponge, in order to extract bodies which are not deeply engaged in the oesophagus. This method may be disagreeable to those who reflect on the use to which this instrument is generally applied. But in order to prevent this disgust, we may cover it with a roller, or small ribbon, which will so conceal it, as to hinder it from touching any of the parts immediately.

This instrument, as we have before observed, can only be used in cases where the bodies are not far depressed in the oesophagus. For this reason *Fabricius Hildanus*, who sometimes used this instrument, was obliged to have recourse to that which he says was invented by *Gautier Herman Ryff* *, a celebrated surgeon of *Strasbourg*, and which may however be ascribed to *Arculanus*. It is true the instrument of *Arculanus* was lead, and that of *Ryff* copper. *Fabricius Hildanus* perfected this copper instrument, which has been since generally adopted. This instrument is a crooked canula of copper, or silver, as large as a swan's quill, about a foot and an half long, pierced with several holes all along, and furnish'd at its extremity with a small piece of new sponge, firmly secured. *Fabricius* † has made several very essential improvements on this instrument; for, first, the canula invented by *Ryff* terminated in a kind of point; so that it might have been convey'd into the glottis, and perhaps have suffocated the patient, who on such occasions is in great agitation, or, at least, it might have irritated or wounded the membranes of the mouth, or of the oesophagus; but *Fabricius* order'd his instrument to be made blunt

* Chirurg. magn. *Gualiberi Ryff*, ling. Germanicæ conscript.

† Cent. 1. Obs. 36.

blunt at the end. Secondly, *Ryff* put no sponge at the end of his instrument, whereas *Fabricius* fix'd a sponge on it, because he knew that it greatly facilitated the introduction of the canula into the pharynx above the epiglottis, and that it was particularly proper more surely to depress, or retract foreign bodies lodg'd in the œsophagus. Thirdly, the instrument of *Ryff* was hollow and weak, on account of the quantity of holes with which it was pierc'd. When *Fabricius* used it to displace a bone which stuck in the œsophagus, it happen'd that the patient, who had strong convulsions, shut his teeth with violence, and bruised the instrument, which, as *Fabricius* well observes, might have been broken, and the portion engaged in the œsophagus, falling into the stomach, might have produced terrible symptoms. These considerations induced this great surgeon, with a view to render this instrument stronger, to put into the hollow of the canula a large copper or brass probe, well fixed, and leaded at both extremities, in such a manner however that this probe, tho' pretty large, did not fill up the holes of the canula, whose use is to receive and lay hold of small extraneous and acute bodies. We may see the figure of the instrument, as reform'd by *Hildanus*, in the observations of the author *, in *Scultetus's* Arsenal of Surgery †, and in *Mangetus's* Biblioth. Chirurg. ||

Notwithstanding the success of *Fabricius*, and most other practitioners who have follow'd him, whether in extracting bodies which only possessed a part of the œsophagus, or in depressing to the stomach such as block'd it entirely up; yet this instrument had still the misfortune to be inflexible, and consequently could be of no use when these bodies are lodg'd in the inferior part of the œsophagus. This imperfection has induced M. *Petit* to invent another

in-

* Tab. 13. Fig. 5. † Fig. 6c. || Tab. 28, Fig. 5.

instrument, which may answer in all cases. It is also form'd of a silver canula, with a piece of sponge fix'd at its extremity. This canula easily accommodates itself to the figure of the part into which it is introduced, because it is made of a silver wire turn'd like a spiral, which renders it flexible in all its length. When we intend to use this instrument, we put into the canula a piece of whale-bone, proportioned to its length and diameter, in order to give it that strength which is necessary to answer the end for which it was design'd. The whale-bone is longer than the canula, and that extremity which does not enter it is larger, that it may serve as a handle. The whale-bone being thus adapted, is secured in the canula by two small hooks at its extremity, which enter into two grooves in the handle of the whale-bone. See PLATE IX. Fig. 10.

There is a remark necessary to be made, with respect to the sponge fixed on the extremity of the two last-mention'd instruments; I mean those of *Hildanus*,

Other remarks on the use of the sponge.

and M. *Petit*. It is customary to leave them furnished with the sponge, to be on all occasions ready for use; but two inconveniences may arise from this: the former is, that the sponge, having been wet, becomes hard. In this case it cannot easily be brought into a small compass, when we want to introduce it with ease, nor be sufficiently dilated, when we set it at liberty for the augmentation of its bulk, in order to bring away the extraneous body securely.

The second inconvenience, which is still of greater importance than the first, is, that the thread which fixes the sponge to the canula rots, when it has been wet several times, and dried slowly: Thus it may break during the operation, and permit the sponge to fall into the stomach. The best method of preventing this inconvenience, if we want to keep the instrument mounted with sponge, without dread-

dreading the putrefaction of the thread which retains it, is to pass a brass or silver wire through the whole length of the sponge, and by that means secure it to the canula.

It is also highly proper to make young surgeons observe, that when they convey into the throat any instrument proper to extract or depress any body engaged in the œsophagus, they ought to introduce it with a great deal of precaution, for fear of making it enter the glottis, and perhaps suffocate the patient, who, on these occasions, is generally under great agitation. *Meeckren** informs us that this accident happen'd in his time to a surgeon, but little acquainted with anatomy, and that it produced very terrible effects. In order to avoid this inconvenience, we must slowly and dexterously conduct the instrument along the root of the tongue, and above the epiglottis, carrying it towards the posterior and inferior parts of the pharynx, and make it pass into the œsophagus: we must pass it by little and little along that canal, leaning gently on the side of the vertebra till we are come at the extraneous body we intend to dislodge. When the instrument is sufficiently introduced, we are to throw the whalebone somewhat to one side, in order to leave the epiglottis free, and not to confine it in its motions. It is also to be observed, that the whalebone ought to be no larger than to be strong enough to convey the sponge into the œsophagus.

We shall not here speak of several other means, which are generally used to depress and extract foreign bodies, and which have sometimes succeeded, as we shall elsewhere see. Such are the leek, the wax-candle, and other bodies, because when the indication to extract these bodies is determined, and when we want to avoid the danger of depressing them, we do

Uncertain means
of extracting ex-
traneous bodies.

do not think it expedient to have recourse to these uncertain and fallacious means.

However, when, in a pressing case, we are destitute of the instruments peculiarly destined to extract foreign bodies, we may use the means which occur most readily, since these have frequently succeeded. Blows of the fist on the neck, recommended by some authors, frequently produce happy effects.

A young girl swallowed a large pin, which stuck a little below the pharynx, and produced very intense pains. As she could not speak, she made her mother understand by signs, that she had an extraneous body in her throat.

XV. Observation, by the author, on a pin thrown up by means of a blow of the fist on the back.

The mother gave her a severe blow between the shoulders, which drove the pin into the mouth, so that the patient was forthwith deliver'd from that body, which so much incommoded her.

When all the mechanical means before mentioned are not sufficient for the extraction of foreign bodies from the oesophagus, we have still another expedient which may succeed, especially, as several practitioners have observed, when the stomach is considerably full of aliments. This last method consists in exciting a vomiting, either by putting the finger, or the bearded end of a quill into the throat, or by making the patient swallow oil, or a common emetic.

Fifth kind of means. Remedies.

Vomiting.

*Gruelingius** informs us, that a young man at a feast, eating red cabbages, a small bone concealed in them stuck in the oesophagus. The author being in company, and forthwith perceiving the accident, struck the young man strongly on the neck, as nurses do when their children have swallowed any pieces of aliment which stick in their throats; but

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this

this conduct did not succeed, and the patient remained in the same condition till next day. *Gruelingius*, who during the night, had probably reflected on the most proper method of relief, in the morning, examined the patient's throat, to try whether he could discover and extract the bone; but he did not succeed. He then made the patient swallow several glutinous and liquid substances, in order to convey the extraneous body into the stomach; but all these proving ineffectual, he exhibited a vomit, which threw up the bone.

The œsophagus is sometimes so stopt up, that it is not possible for the patient to swallow a vomit. *M. Mogniot*, in a similar case, successfully used a clyster of tobacco to excite a vomiting. A man, whose teeth were almost entirely lost, swallowed a large piece of

XVI. Observation, by *M. Mogniot*, on a piece of lamb's liver thrown up by vomiting, excited by a clyster of tobacco.

lamb's lungs, which stuck in the middle of the œsophagus, and so exactly shut up the passage of liquid aliments, that the patient threw them up as soon as he had taken them. A surgeon being called, in vain used all the ordinary means used to dislodge foreign bodies, such as, the fingers, the leek, and a wax-candle. He also gave him an emetic, which could not pass into the stomach, because the passage, as we have observed, was entirely shut up by this spongy body. *M. Mogniot* being called on the third day, found the patient ready to be suffocated, for his face was black, and tumefied, and his eyes starting, as it were, out of his head. He also fell into frequent syncopes, which were succeeded by convulsions. *M. Mogniot* seeing the patient in this extremity, and reflecting on the little success of the means before employed, did not think it expedient to repeat them. He therefore gave the patient a decoction of an ounce of pig-tail tobacco by way of clyster,

clyster, which procured a vomiting so violent as to make the patient throw up the extraneous body, which, without this speedy relief, would have prov'd mortal to him.

The remedies we have mentioned may also be used for expelling foreign bodies which have entered into the arteria trachea. When a body, even of the smallest size, passes into the larynx, very considerable symptoms forthwith happen. The patient feels an acute and pungent pain, he speaks with a great deal of labour, and his voice is hoarse; his respiration is also so difficult, that he is in imminent danger of suffocation. But the first symptom which appears is always a violent and frequent cough, and other turbulent motions, which sometimes facilitate the discharge of the extraneous bodies, especially when they have not slipt very far into the larynx; we have examples enough of this in observation*.

Most authors, both antient and modern, the better to procure a discharge of these bodies, order us to excite sternutation, coughing, and even vomiting, and to strike the patient frequently on the neck and back. *Ætius*† advises to make the patient swallow four liquors, and to blow a sternutatory into his nostrils. Some other antient practitioners, in this case, also recommend acrid substances, capable of irritating the fibres of the throat, and by that means exciting a cough.

Fabricius Hildanus || says, and I think very justly, that we ought to abstain from acrid medicines capable of exciting a cough; for, says that practi-

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Sternutation, the cough, &c. in order to facilitate the discharge of such bodies as have slipt into the arteria trachea.

tioner,

* *Oswald. Gabelcower. Obs. Schenk. Lib. 11. Obs. 1. Donat. Histor. mirab. Medic. Lib. 3. Cap. 7. Bonet. Med. Sept. Lib. 2. de oris affect. Sect. 9. Cap. 2. Sennert. prax. Lib. 2. p. 2. Cap. 1. p. m. 142.*

† *Chirurg. Franc. Dalechamp. Chap. 32. Annot.*

|| *Cent. 1. Obs. 36.*

tioner, the cough comes of itself, and the acrid substances, by contracting the arteria trachea, oppose the discharge of extraneous bodies. *Hildanus*, on the contrary, advises, with all expedition, to give the patient oil of sweet almonds, and lubricating syrups, such as those of liquorice and marshmallows. He also orders us to blow into the nostrils some pepper, or the powder of euphorbium or white hellebore, in order to excite a sternutation.

In practical authors we find some examples of the success of expectorating medicines, sternutatories, and emetics, on occasions of this nature.

Hagendorn * informs us, that a girl eating plums, swallow'd one of the stones, which unfortunately fell into the trachea, by which means the patient was in immediate danger of suffocation. Her voice was weak and hoarse, and she discharg'd a great deal of phlegm mixed with blood. Immediate recourse was had to oleous and expectorating, and even to emetic remedies, but all without any success. At last she had a very acrid and stimulating remedy exhibited, which excited a very violent cough, and facilitated the discharge of the stone from the trachea.

Riedlinus § also gives us the history of a young man into whose mouth a person, from a very considerable distance, had thrown a pea, which slid into the larynx. This body forthwith produced a great difficulty of respiration, and a very violent cough. He was ordered forthwith to take a large dose of oil, which made him vomit, and expell'd the pea.

The same author † also speaks of an infant who swallowed a bone which fell into the trachea. *Riedlinus* came seasonably to the assistance of this infant,

* *Ponet. Med. Sept. Lib. 2. de oris affect. Sect. 9. Cap. 2.*

§ *Bonet. Med. Sept. Lib. 7. Paralipom. ad Lib. 2. Sect. 7. Obs. 1.*

† *Ibid. Scholion.*

fant; for he strongly blew powder of lilly of the valley into its nostrils, which excited a sternutation so violent as to expel the bone.

Muys * and *Verduc* † also order us to excite sternutation, and even vomiting: neither does this last author forget the use of volatile and diaphoretic remedies, which in these cases he thinks proper to determine the animal spirits to flow copiously into the muscles of the larynx, in order to expel the extraneous bodies lodg'd in it. *Verduc* || also proposes to make the patient swallow oil of sweet almonds, and boluses of fresh butter, because these, by softening and lubricating the passages, may facilitate the discharge of the extraneous body, during the efforts the patient makes to expel it. But if these oleous and unctuous remedies are not sufficient, he orders us speedily to have recourse to emetics, to excite more violent and more repeated efforts. Fat and unctuous leniments, applied to the back along the trachea, may also, according to the same author, be of use, in order to soften the muscles and cartilages, and facilitate the discharge of those bodies which are ready to suffocate the patients.

Third Case.

Bodies which ought to be extracted, but which we are obliged to depress.

The extraneous bodies we have mention'd are sometimes lodg'd so deep in the oesophagus, or so engaged in its sides, that we cannot extract them; and very often such bodies produce extremely pressing symptoms, which oblige us to depress them. It is true, this is a terrible experiment, but whatever danger is to be dreaded from this method, we may nevertheless hope that it will not produce effects so

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fatal

* *Obs. Chir. Dec. 7. Obs. 9.*
|| *Ibid. Cap. 26.*

† *Pathol. Chirurg. Tom. 2. Cap. 25.*

fatal as those occasioned by the presence of such bodies in the œsophagus. This hope is not without a just foundation, since in practical authors we find a great number of observations, wherein we see that extraneous bodies have been received into the stomach, and passed thro' the intestines, without proving mortal, and even without producing remarkable disorders.

Most of the examples which we have related in the preceding article, in order to represent, by facts, the symptoms which are to be dreaded from these extraneous bodies, instead of terrifying, ought to encourage us in the present case; for it is to be observed that the effects of these bodies are generally confined to irritations, pains, suppurations, or some other symptoms, which continue longer or shorter, and cease entirely when the body which produced them is removed.

A great many examples of dangerous extraneous bodies swallowed, without producing bad effects, authorize us to depress when we cannot extract them.

In order to put our readers in a condition to judge of the courage with which similar observations ought to inspire us, we shall support these examples by a great number of others, which still farther authorize surgeons to follow the method we now propose. Some may perhaps think that, by this great number of facts, joined to those already related, we shall overcharge our subject, and that it would be sufficient to suppose these facts, and lay down the general doctrine arising from them. Perhaps I should have followed this last method, if I had not known that the Academy rejects all doctrines without the facts which ought to attest and confirm them. In a word, we are convinced that most of those who write either on the theory or practice of our art, only consult their reason, or at most their own experience; and that we ought always to be afraid lest they should impose upon us, by seducing ideas, which have deceived

ceived themselves, or by general precepts, which they have founded on some particular facts they have observed. 'Tis therefore necessary that all the points either of theory or practice, which we treat of, should appear with the facts which serve to illustrate, determine and prove them, that our readers may, from the materials we use, judge of the solidity of our work. Perhaps, after having examined them, they will reap greater advantages from them than we have done; and it is certain they will always receive benefit from our efforts and researches.

Experience, which renders us skilful in the healing art, that is, which acquaints us with different diseases, and the method of curing them, and which we

Experience ought to be distinguished from dexterity.

here distinguish from the habitude of the senses and hands, which renders us dexterous in discerning and executing; I say, this so instructive experience cannot be compleatly acquired but by the history of practical facts applied to the different cases, which these facts themselves make us distinguish from each other. We are not therefore to think

The experience which the most consummate practitioner can acquire is very narrow and confined.

that a long practice can procure universal experience: none but the vulgar can entertain such a notion; at least, none but such as know not what experience is in the learned and extensive arts, can think so foolishly of that which we are to acquire. It is, in my opinion, easy for those who have

the smallest acquaintance with the healing art, to perceive that the surgeon of the greatest practice, who

A great experience consists in the general history of facts.

confines himself to the experience which his business may procure him, spends his whole life only in learning a small part of the things which were wrote many ages ago, and which he might have become well acquainted with in a much less time, by the

history of practical facts left by those who have gone before us in the practice of our art.

It is true, this cannot be an easy study, unless those facts are collected, and ranged in such an order as to make us perceive what is remarkable in them. It is sufficiently evident, that, in this case, observations are much more beneficial than when they are dispersed and confounded in the writings of authors, and also much more instructive than those facts which pass successively, and present themselves one by one in the course of a single man's practice. Every practitioner may indeed remark some extraordinary facts, by the exercise of his art acquire some important pieces of knowledge, and invent some particular methods of cure not known before; and 'tis certain that the novelties of this kind gradually enrich the healing art. But this experience of each man, is no more than a single point, in comparison of the concurrent discoveries and observations which have been transmitted to us by a multitude of practitioners, who have liv'd at different times, and in different parts of the world.

'Tis therefore only by the history of facts that we can surely and compleatly acquire this experience. But the collection and arrangement of observations require a great deal of attention to place them in an advantageous light, and a great deal of caution, not to accumulate in common cases such as have too great a resemblance, and cannot augment our knowledge either by their circumstances or their number. It is, however, sometimes very useful to collect them, neither ought we to be negligent in so doing, especially when we want, by the greater or smaller number of examples found in practitioners, to determine whether a case is rare or frequent. It is, however, to be observed that the least common and ordinary facts are collected with the greatest exactness; for it is to no purpose to relate those which occur e-
very

very day in practice, and on which the common principles and precepts are established. Thus we ought to look on those facts, on which we have the most observations, as rare; but, among rare and remarkable facts, those which are least rare, are certainly most numerous in the works of observators. Now, 'tis by this means that we are enabled to judge of the extent of the case we are about to examine. The facts which make us acquainted with this case, are not common enough to have been neglected by authors; we may therefore know, from these facts, whether it has often happened that extraneous bodies, which to us appear very dangerous, have been swallowed without proving mortal, and even without producing considerable symptoms. Thus, in such a case, it is necessary to have recourse to the observations dispersed in authors, and to relate them, that our readers may know by these examples, and those they have seen in the preceding article, what they ought to think with respect to the fatal effects to be dreaded from these bodies, when we are obliged to depress them.

Platerus * informs us that a woman had, at different times, swallowed several bones of hens feet; and that, after some violent colic pains, she discharged them by the anus; neither did it afterwards appear that these bones had left any bad impression on the parts thro' which they had passed. A child of three years of age swallowed a small bone, and was instantly seized with a cough so violent that he was ready to be suffocated; he vomited a great deal, and discharged a large quantity of phlegm by the mouth and nose. However, he easily swallowed every thing that was given him. *Raygerus* † being called to see this child, took his disorder rather for a suffocating catarrh, than for the effect of the bone he had swallowed'd.

* Obs. Lib. 3. pag. 899.

† Bonet, Med. Sept, Lib. 3. de oesoph. affect. Sect. 1. Cap. 7.

low'd. On the third day all the violent symptoms ceased, and there only remained a cough and hoarseness. However, he swallowed soft and liquid aliments more easily than such as were hard, and he vomited twice or thrice every day: at last, on the fourteenth day, the child having eat some broth, had a considerable vomiting, by which he threw up a small bone of a breast of veal, upon which all the symptoms immediately ceased. The ease with which the child swallowed his aliments, and the cessation of the vomiting, and other symptoms, when the bone was thrown up, sufficiently evince that this bone had descended into the stomach, and that the symptoms depended on the extraneous body, and not on a suffocating catarrh, as *Raygerus* imagined. But nature seized the true indications, and took the surest method.

We have placed the large stones of fruits, such as those of apricots, of large plums, and especially of peaches, among the number of bodies which cannot well be swallowed without danger; and though we have seen the fatal effects of these bodies, yet happily they are not always injurious and terrible. *Schenkius* * gives a detail of the symptoms which happened to a man who had swallowed the stone of a peach: these symptoms were indeed very considerable, but at last the patient was deliver'd from them without any troublesome consequences. It is easy to conceive that these bodies may even produce no symptom at all, if their blunt end always goes first, as they pass thro' the first organs of digestion; so that we need not be surpris'd that such bodies often produce no effect, at least after they have descended into the stomach.

Of this *M. Engerran* gives us an example, in an ob-

* *Obs. Med. Lib. 3. Obs. 4.*

observation which he has communicated to the Academy. He was called to the relief of a child of five years of age, who had swallowed the stone of a peach, and was in very great danger, on account of the symptoms produced by the stone which had stopp'd in his pharynx. M. *Engerran* introduced his finger into the child's throat, and touch'd the extraneous body; but perceiving that it was impossible to extract it by the mouth, he pressed upon it, and made it fall into the stomach. The child was forthwith freed from the imminent danger in which he was, and felt no incommodity afterwards. The stone was some time after discharged by stool.

XVII. Observation, by M. *Engerran*, on a stone of a peach thrust into the stomach by the finger.

Tho' the stones of most other fruits seem to be less dangerous, yet they sometimes produce terrible effects, tho' they rarely prove mortal. *Roeslerus** informs us that a young girl swallowed the stone of a plum: the surgeon called to her relief introduced a wax-candle, rubb'd with oil, into her oesophagus, and by that means depressed the extraneous body. The girl, who had for some time before been subject to a cough, had that disorder afterwards much more violent; however, she did not feel much pain, but now and then discharged bloody and purulent spits; she had accessions of a fever, which were sometimes irregular, and sometimes regular, like those of a tertian. She was seized with a great difficulty of breathing, accompanied with hoarseness, and even with convulsions: these symptoms, tho' very considerable, ceased at last on the discharge of the stone, which she threw up in coughing; she at the same time evacuated a great deal of blood and pus. We shall afterwards give several instances, in which these stones, when swallowed, have not been discharged by the ordinary ways, but have not, however,

ever, produced symptoms so violent as those specified in the observation of *Roeslerus*.

We may judge of needles and pins, almost in the same manner as of the stones of fruits which have points; for it is easy to conceive, as we have already remarked, that when these small bodies do not present the point first, they may pass thro' the intestinal canal without producing any remarkable disorder. A girl of eighteen years of age swallowed a large pin; the point was engaged in the œsophagus, and produced violent pains, which were greatly augmented when the patient wanted to swallow solid aliments. The surgeon who was called, tried in vain to extract the pin, or to depress it into the stomach, by means of a sponge cover'd with honey, and fixed to a crooked piece of wire: he also, without success, employ'd oleous and mucilaginous draughts, and emetics. The symptoms, however, persisted for more than a year, with the same violence. *Wedelius* *, who then saw the patient, freed her from this extraneous body, and from the symptoms which it produced; he used a wax-candle, anointed with oil of sweet almonds, which he convey'd several times into the œsophagus; at last he depressed the pin into the stomach, and ever since it caused no disorder in the girl's health.

However, we have seen in the preceding article, that pins and needles, especially when large, have sometimes produced terrible symptoms, such as intense pains, colics, gripes, lipothymies, and convulsions, accompanied with ardent fevers and phrensies. *Wierus*, *Segerus*, *Fabricius Hildanus*, and others, have given us several examples of this kind. In the *Acta Berlinensia* we have the history of an obstinate vomiting of blood, occasion'd by swallowing pins; these symptoms indeed, tho' very violent, ceased when these extraneous bodies were thrown

* *Benet*, Med. Sept. Lib. 3. de œsoph. affect. Sect. 1. Cap. 9.

thrown up; which, as we have before observ'd, happens to some sooner, and to others later.

However terrible the symptoms may be, which we have sometimes seen produced by needles and pins, yet we may in some measure be encouraged by a great many contrary facts; for, in practical authors, we find a great many examples of needles, pins, and small nails, which having been swallow'd, have pass'd thro' the intestinal canal, and been discharged by stool, without occasioning any incommodity. With respect to this subject we may consult *Riedlinus* *, the *Commercium Litterarium* †, the *Acta Lipsica* ‡, and the *German Ephemerides* §.

When needles, pins, and other small and sharp bodies, which pass thro' the first organs of digestion, present their points first, they produce symptoms which vary infinitely: this variation, as we have already observed, depends on the sensibility of the parts which are punctur'd, the manner in which these bodies are engaged in the parts, their fix'd state, and their different displacements; sometimes also on their conveyance thro' the texture of the parts themselves, and the lesion of the functions which they hinder or disturb; so that from death, which they sometimes occasion, to the smallest effects to which they are often confined, we see a gradation of symptoms, the detail of which would be too extensive; we shall content ourselves to give a few examples, which will be sufficient to shew what we ought to think in general of the danger to be dreaded, when we are obliged to depress these bodies into the stomach.

Riedlinus † gives us a very singular observation on this subject. A lady at table used a fork, one of whose prongs was ready to break. Just in the be-

* *Lineæ Med. ann. 6. Obs. 6.* † *Pag. 228.* ‡ *Ann. 1694. Jan. p. 2.*
§ *Dec. 1. ann. 3. Obs. 141. Dec. 3. ann. 5. & 6. App. Dec. 2. ann. 3.*
Obs. 59. † *Lineæ Med. ann. 3. Jan. Obs. 5.*

beginning of the repast, she with this fork convey'd a bit of victuals into her mouth; but she was greatly surpris'd, when in drawing it out after she had swallowed the bit, she saw that her fork wanted one of its prongs. She was terribly frighted at this accident, especially since she began almost instantaneously to feel a pain in her throat, which continued to augment, and was even communicated to the stomach, into which the extraneous body had probably descended. The lady hesitated for some minutes, whether she should continue to eat, or attempt to make herself vomit: at last she resolved to continue her repast, and found that her pain diminished in proportion as she eat. However, her anxiety with respect to the event, laid a foundation for consulting *Riedlinus*. This practitioner, with a view to facilitate the descent and passage of the extraneous body from the stomach into the intestines, ordered the lady very often to take some oil of sweet almonds. This remedy alone, continued for some days, made the pains cease totally, which induced him to think that she had discharg'd the prong of the fork with her excrements.

Fabricius Hildanus† informs us, that a lady in putting on her head-cloths, carelessly swallowed some pins she had in her mouth. In the œsophagus, she instantly felt intense pains, which were allayed by some remedies she used; however, there always remained a fixed pain in the œsophagus, especially when she swallowed solid aliments. She also felt, especially after meals, pungent pains in the bottom of her stomach, and in some parts of her abdomen. These symptoms continued for a long time, since the lady was not freed from them, till she threw the pins up six years after she had swallow'd them.

'Tis experience alone, which can teach us that
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† Cent. 6. Obs. 36.

several extraneous bodies of this nature may remain so long a time in the first organs of digestion, and only produce so inconsiderable symptoms; so that the following observation seems to deserve our attention. A girl of ten years of age, in the course of twelve or fifteen days, discharged by stool, more than fifty needles of different lengths, which she had swallowed five or six years before. *Pinetus**, who relates this fact, says, that, during that time she only felt some interrupted pains in her stomach and abdomen; she suffered more when she discharged these needles, because they produced very violent gripes: their evacuation was even accompanied with some drops of blood; but when she had evacuated them all, these symptoms disappeared entirely.

Sharp bodies, swallowed, are often evacuated by the urinary passage. This is a fact to which we ought to be very attentive, on account of the symptoms which such bodies may produce in the organs through which they pass. In order to judge of this case, and discover how ordinary it is, we shall now relate some examples of it: *Julius Cæsar Claudinus*† informs us, that a child of seven years of age swallowed a bodkin longer than two finger-breadths, and that during the two first years (for the bodkin remained five or six in his body) the child had violent pains in the kidneys and bladder. He at different times discharged small stones and sand, living worms, and even a blackish matter of a very bad smell; at last he was seized with a very great difficulty of making water, and fell into an almost total retention of his urine. In the violent efforts he made to make water, he perceived at the end of the urethra, a small sharp body, which he

Extraneous bodies
discharged by the
urinary passage.

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* Zodiac. Medic. Gall. April 1680. Observ. 5.

† Respons. Med. 40.

extracted himself. The by-standers were greatly surpriz'd to see that it was the bodkin he had swallowed five years before. It was incrustated with a gypseous and stony matter, of a cineritious colour. By its figure and bulk, it pretty nearly resembled the stone of a large olive.

We see in this observation a train of symptoms which ought to make us greatly afraid, lest this kind of extraneous bodies should take this road, when we are forced to make them fall into the stomach; but the following observations tend to moderate our fear in this case. *Diemerbroek* || says, that his wife swallowed a middle-sized pin, which she discharged with her urine three days after, without having felt the least pain. *Langius* § also relates that a young girl swallowed five needles, which she evacuated by the urethra three days after. But the following fact is still more remarkable: a girl during her sleep swallowed a large bodkin, which she used for keeping her hair in order, and ten months after she discharged this bodkin by the urinary passage; *Benedictus* *, who relates this fact, says that the girl was not in any manner incommoded by it.

It is very surprising that even those small and sharp-pointed bodies should insensibly open a passage for themselves into the bladder, but we have also seen bones, and stones of fruit, which have taken the same road. This indeed has never happened without almost always causing violent pains, and other symptoms. We find, in the observations of *Platerus* †, an account of a man who discharged by the urethra some small bones which he had swallowed in eating; these bones, by their inequalities, produced an inflammation in the rectum, which was succeeded by a suppuration and loss of substance

|| *Libr. Anatom. cap. 173.* § *Libr. 2. epistol. 40.*

* *Libr. 2. cap. 9.*

† *Tom. 3. Libr. 2. cap. 10. de mictione, & cap. 16.*

stance in that intestine; the small bones passed thro' this aperture into the bladder, and were discharged with the urine. *Bartholin** and *Borelli*†, relate two cases nearly similar.

Bartholin|| also speaks of a man who swallowed the stone of a damask prune; he had some time after a retention of urine, which lasted four days, and was accompanied with an intense pain in the right lumbar region. This disorder was treated like a nephritic colic; on the fourth day the stone of the prune was discharged by the urethra, and the urine at the same time flow'd very copiously. In the *Ephemerides*§ we find a nearly similar case of a man who had swallowed several stones of prunes, which he some time after discharged with his urine.

We do not here speak of a stone of a peach in the same memoir, said to be discharged by the urethra, for fear of being tho't too credulous. However, not to contradict any one, we may suppose that a very small peach-stone, and a very large urethra have in this case met together. In a word, it is always by similar combinations, that chance is the parent of the most surprising and extraordinary phenomena.

'Tis, in my opinion, to no purpose to relate a greater number of examples of extraneous bodies discharged by the urinary passage; those who are curious to see more of them may consult *Stalpart Vanderwiel*‡, *Bartholin***, *Mizaldus*‡‡, *Thonerus*||§, *Bonetus*|||, and the *German Ephemerides* §§.

The passage of these bodies, which penetrate from the first organ of digestion into the bladder, seems to be easily explained. Anatomy shews us

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that

* *Ephem. Obs.* 73. ann. 2.† *Cent.* 2. *Obs.* 5.|| *Act. Haffn. volum.* 5. cap. 105.§ *Dec.* 3. ann. 2. *Obs.* 150.‡ *Cent.* 2. *Obs.* 18.** *Act. Haffn. volum.* 5. cap. 105.‡‡ *Cent.* 1. *Aphor.* 3.||§ *Lib.* 3. *Obs.* 2.||| *Medicin. Septentr. Lib.* 3. sect. 29. cap. 25.§§ *Dec.* 2. ann. 1. *Obs.* 142. & 168.

that they may penetrate into this organ, in parts where the passage is very short: but it is difficult to determine in what part of the intestines these bodies are most easily disposed to open a passage for themselves. They, however, who have a desire to explain this phenomenon, pass over this difficulty, and give a decisive sentence. The case we are now considering, presents them with probabilities too deluding not to captivate them. *Julius Cæsar Claudinus* * thinks that these bodies penetrate the ileum, at the part where it touches the bladder near the os pubis; or the colon, at the part which passes behind the bladder, into the cavity of the os sacrum. But we have seen, in the observations of *Platerus*, *Bartholin*, and *Borelli*, before related, that the extraneous bodies of which they speak, made a passage for themselves thro' the rectum, in order to enter the bladder.

Neither do the needles and pins, which are several years in penetrating into the bladder, favour the opinion of *Claudinus*; for it does not appear that on such occasions these bodies take the shortest road. By this means we also discover how uncertain and useless those explications are which are only founded on conjecture; and how much reason men of sense have to despise them, when they are not decisively proved by facts. I do not however deny that these bodies may pass thro' the parts mentioned by *Claudinus*; but that is not enough: This possibility neither establishes nor determines the reality of a thing, which may happen, and does actually happen differently.

Tho' fragments of glass, crystal, and other similar substances, when swallowed, almost always produce mortal symptoms, as we have seen elsewhere, yet, in practical authors, we find a considerable number of observations, which prove that these

* *Respons. medicin.* 40.

these substances are sometimes received into, and pass thro' the first organs of digestion, without producing any sensibly bad effect. We find in *Amatus Lusitanus* * a very circumstantiated history of a man, who with pleasure eat leather, fragments of glass, and pieces of earthen-ware, without being incommoded by them. *Cardan* † speaks of another who, without being injur'd, swallow'd nails, pieces of glass, broken pitchers, and other similar substances. *Fabricius Hildanus* ‖ informs us that he knew three very robust persons, from their youth accustomed to intemperance, who one day, amidst their frolics, broke several drinking glasses between their teeth, and devoured them with so much avidity, that the blood flow'd from all parts of their mouths; these persons however had not the least disorder produced by this means, but all of them arrived at a very old age. We may find many similar facts in *Borelli* §, *Aldrovandus* ‡, *Franck de Frankenau* ||, and others.

The powder of diamonds is more dangerous than diamonds themselves. It does not indeed appear that diamonds can prove hurtful, when they are not furnished with angles, or sharp asperities, capable of pricking or lacerating the parts; for it is only by the inequalities of their surface that they can wound. Hence it is not astonishing to find, in practical authors, that diamonds have produced fatal symptoms in those who have swallow'd them §§. while others have had no effect at all **. We are much more surpris'd with the observation of *Cardan* ††, who assures us that he saw a man who swallowed several sparks of diamonds, without being in the least incommoded by them. It is probable

C c 2

bable

* Schol. Cent. 2. Curat. 69.

† Lib. 8. de rer. variet. Cap. 40.

‖ Cent. 5. Obs. 2. Sect. 217.

§ Cent. 1. Obs. 52 & 69.

‡ Histor. monstror.

Prax. adm. Lib. 2. Obs. 18.

|| Satyr. medic. 16. de hyalophag.

§§ Zacut. Lusitan.

Nostr. Lib. 1. Sect. 45.

** Ephem. Dec. 3. ann. 9. Obs. 97. Toxicol.

†† Contrad. Med. Lib. 2. Tr. 5. contradi. 10.

bable that these sparks were not very sharp, or that they had been sheath'd up by viscid and compact aliments, which hinder'd them from acting on the stomach; and afterwards by a large quantity of fæces, which preserved the intestines from them.

There are certain extraneous bodies which, on account of their bulk, hardness and form, ought to be looked upon as very dangerous, and which have nevertheless been swallowed without proving mortal. There have even been some of them which have passed thro' the first organs of digestion, and have been discharged by stool, without having produced any remarkable symptoms.

Of this *M. Rivals* gives us an example, in an observation he has communicated to the Academy. This surgeon was sent for to the cloyster of *St Opportune*, to see a little girl of five years of age, who had swallowed the buckle of a shoe, the ring of which was tombac, and the chape and tongue iron. *M. Rivals* found the patient had lost her senses; she had also violent convulsions in all the parts of her body, and especially about the region of the stomach. He made her forthwith swallow two large glasses of oil of olives, with a design to make her vomit, and by that means throw up the extraneous body: The oil producing no effect, he made her take three grains of stibiated tartar at three doses, which made her vomit very plentifully. About an hour after the operation of the emetic, her senses returned, but she complain'd of a very pungent pain in the region of her stomach. *M. Rivals* blooded her several times, and for three weeks order'd the continuation of the oil of sweet almonds, to the quantity of half a pint each day. During this time, she observed a very exact regimen; and tho' she only used very light aliments, she was now and then afflicted with violent colics of the stomach, which were alleviated by oleous remedies.

She

She passed two years in this condition, after which there appeared a very painful tumor, about four large finger-breadths in circumference, in the right hypochondrium, inclining to the epigastric region. *M. Rivals* repeated the venesections, and order'd anodyne and emollient cataplasms to be applied to the tumor. After having continued these cataplasms for fifteen days, the patient found herself relieved of the pain she felt in her stomach. The tumor disappeared by means of a looseness, in which she discharged a large quantity of purulent matter. The abdomen, which was tense, resumed its natural state; and, in a word, all the symptoms ceased. The patient took two evacuating doses of manna, and oil of sweet almonds. Tho' great care was taken to look at her excrements, yet it was not found that she had discharged the buckle. Sixteen or eighteen years after *M. Rivals* saw this girl full of flesh, and in a good state of health.

M. Puzos has communicated to us a case of the same kind, tho' the consequences of
XIX. Observation, by M. Puzos, on the same subject.
 were less terrible. A young scholar of about ten or twelve years of age, happen'd accidentally to swallow the buckle of his shoe, which descended with some difficulty into his stomach. The young man was very much frightened at the accident, but was soon deliver'd from his uneasiness; for next day the buckle was discharged by stool, without having caused him the least pain.

The following fact, related in the *Ephemerides* §, is not less surprising. *Mackius* informs us that a child of four years of age, in its play, swallow'd the lid of a small tin box, which stuck in his throat, and excited very violent pains. A surgeon attempted to push it into the stomach with various instruments, but he could not remove it from its place; and all his attempts only serv'd to augment the pain and

danger of suffocation in which the child was. He tried to make him drink various liquors, both warm and cold, such as water, beer, and oil; but the infant, who could swallow nothing, threw them up forthwith. About half an hour after, he tried to make him swallow a large glass-full of oil of olives; he swallowed it, and by its means the lid of the box descended into the stomach. The pains it excited in its passage were so intense, that the child fell into a syncope, which was succeeded by convulsions. However, these symptoms were soon removed, and nothing remained but a difficult deglutition, which persisted for some time. On the fifth day, the child wanting to go to stool, the lid of the box, which was notch'd, and cutting at its edges, presented itself at the orifice of the anus, and caused such violent pains as forced the child to shriek bitterly: he tried to extract it himself, but not succeeding, his mother, whom his cries had brought to his assistance, laid hold of it with her fingers, and extracted it. The child forthwith discharged a large quantity of bloody matter, which continued to flow for some days with a great deal of pain; anodyne and detergent clysters were injected into the rectum, which cured the dilaceration that this extraneous body had made in the anus.

Several celebrated observators relate the history of a flute four inches long, which being swallowed produced troublesome effects. However, we find that the person to whom the accident happen'd, did not suffer so much as might have been expected from a body of such a length. A young man who play'd on a flute, received a blow from one of his comrades, which thrust the instrument into his throat, in such a manner that it could not be extracted soon enough to hinder it from slipping into the œsophagus, in which it stuck for some time, and afterwards fell down into the stomach, where

it was perceived in the right side thro' the teguments of the abdomen. This flute for three days produced intense pains, and hinder'd the patient from eating, drinking, and sleeping; but at last it passed through the intestines, and the patient was lucky enough to discharge it by the anus. This history is related at great length by *Olaus Wormius**, *Statpart Vanderwiel*†, and by *Bartholin*‡, with the figure of the flute represented in its natural bulk.

In *Forestus* § we have a nearly similar observation, relating to a man who swallowed a thick piece of wood an inch long, which was also discharged by stool, after having remained for a year in the first organs of digestion.

In the *Acta Medica Berlinensia* † we find a history still more singular than those before related. Upon dissecting the carcass of an hang'd man, it was found that about two months before he had swallowed seven pieces of wood, probably with a design to put an end to his life. These pieces of wood, which were broken irregularly, had points capable of penetrating and lacerating the parts. One of the pieces was four inches and half long, and three quarters of an inch broad, notwithstanding which, the man was in good health before his execution. We could only learn, from exact information, that he had for some time before complain'd of violent pains in the epigastric region. The whole seven pieces of wood were found above each other, mostly in the right side of his stomach; but it was not perceived that they had made the least impression on that part.

Slight of hand, and the tricks of jugglers may impose on the most attentive spectators; and we have reason to believe that the seeming miracles of those who make it their business to swallow knives, scissars,

C c 4

* Musæi Lib. 6. Cap. 9. † Cent. 1. Schol. in Obs. 21. ‡ Cent. 1. Histor. 69. § Obs. Med. Lib. 15. Schol. ad O. † Decad. 2. Vol. 4. Obs. 11. pag. 79.

scissars, and portions of sword-blades, are no more than pure illusions, for which reason it is prudent to take all the necessary measures to prevent our being imposed upon. Tyzon * gives us the history of a tumbler of the name of *Sichard*, who in presence of some *English* gentlemen swallowed a blade of a sword an ell long, after having broken it into several pieces. Some time after he swallowed two knives and a razor before the King of *England*, who, suspecting some fraud, order'd the tumbler's hands to be tied behind his back, and he himself put one of the knives into his mouth; notwithstanding which, these instruments were discharged by stool three days after.

The same *Sichard*, besides a large number of extraneous bodies, such as flints, pieces of copper, and silver coin, portions of keys, and sticks, also swallow'd two knives in presence of several persons. One of these knives, being included in a sheath, was nine finger-breadths in length. He discharged them by stool at the end of nine days, and after he swallow'd them, had no other symptoms except some lancinating pains, follow'd by nauseas, and a vomiting of ichorous serosities of a reddish colour.

The marvellous is the rock on which the learned as well as the ignorant split: the former, determin'd to believe nothing, blindly deny every fact they cannot comprehend; the latter, who admire every thing, and do not know when a real impossibility presents, believe without discernment. Both parties, conducted by different prejudices, fall into opposite extremes. A blind credulity embraces the grossest errors, whilst an unreasonable diffidence decisively rejects a large number of facts, attested by a testimony at least capable of making an impression on minds free from prejudice. What can we rea-

we

* *Bonct. Med. Sept. Lib. de æsoph. affect. Sect. 1. Cap. 19.*

we have related, and at least establish the possibility of a great many others, who, in other respects, deserve to have the greatest confidence reposed in their veracity.

Ambrose Paré * informs us, that a buffoon swallow'd the point of a broad-sword, about three inches long; that twelve days after, he discharged it by stool, tho' it produced very considerable symptoms, and that he evacuated it with difficulty and violent pain.

Montius † relates a fact nearly similar, though the length of the piece of the sword-blade renders it still more remarkable.

Forestus ‖, who seemingly look'd on the rust of iron as a poison, seems less surpris'd at a man who, having swallow'd a portion of the blade of a sharp knife, discharged it by stool, than that the iron, which must have been rusted, did not by its rust produce terrible symptoms.

After all these facts, we need hardly be surpris'd that scissars, forks, and other substances of a similar nature, should pass thro' the intestinal canal, and at last be discharged from the anus: for these pointed bodies are not so dangerous as the cutting instruments we have mentioned: there is only one of their extremities to be dreaded on account of their points. Thus, to these bodies we may apply the remark we have made, concerning several other bodies, which are only sharp at one end; and which, when they present the other first, may pass thro' the first organs of digestion without proving mortal, and even without producing considerable symptoms. But it is to be observed that the bulk of a pair of scissars, or of a fork, is sufficient to render these bodies dangerous.

However, *Langius* § informs us that an epileptic patient,

* Lib. 25. Cap. 16.
Schol. ad Obs. 28.

† Lib. 1. Tom. 3. anasc. morb.
§ Zodiac. Med. Gail. Jul. 1680. Obs. 8.

‖ Lib. 15.

patient, in one of his fits, swallow'd a very sharp pair of scissars four inches long, and more than two inches broad, which had been thrust between his teeth, in order to hinder him from biting his tongue; and that these scissars were discharged by stool on the ninth day. During the whole of this time, the patient felt no inconvenience, continued to eat and drink in his usual manner, and used no other remedy except a little oil of olives at intervals. In the *German Ephemerides* * we find several cases of this kind, and nearly similar.

In 1716 the *Journal des Sçavans* furnishes us with a history of a fork swallowed, which remained fourteen or fifteen months in the body: it produced several symptoms, and was at last discharged by stool. The deceas'd M. le Gendre, first surgeon to the King of Spain, and member of the academy, sent us a very circumstantial detail of this fact.

XX. Observation,
by M. le Gendre,
first surgeon to the
King of Spain, on
a fork swallowed,
and discharged by
the anus fifteen
months after.

A *Spanish* officer, on the 27th of May 1714, swallow'd a table-fork, the extremity of which he used for cleansing the root of his tongue. The fork, escaping from his hand, insinuated itself into his œsophagus, and by its own weight, fell into the stomach, in which the first symptoms appeared. The patient felt a considerable pain, accompanied with a sense of weight: these symptoms lasted for a month, after which he complain'd of a more sensible pain of the stomach. It is probable that, during these last symptoms, the fork at different times presented itself to the passage of the duodenum; for the weight was afterwards perceived farther down, and in a more obscure manner.

The pain continu'd, for some time, in different parts of the abdomen. The patient had sometimes an inclination to vomit, and at other times gripes, and

* Dec. 2. ann. 8. Obs. 208. & Dec. 2. ann. 4. Obs. 23.

and a tenesmus succeeded by some stools. Then there superven'd, in the left iliac region, a fix'd and considerable pain, which lasted for two months, and was accompanied with a set of symptoms which depended on the injury done to that part of the intestinal canal in which the fork remain'd, and which seem'd to be the ileon. Among these symptoms the most terrible was the appearance of some filaments of blood in the patient's stools, which made *M. le Gendre* suspect that the prongs of the fork were engaged in the membranes of the intestine. But two months after, the extraneous body chang'd its situation, and only produced moderate pains, which afterwards became intense in the right iliac region; and this circumstance made us suspect that the extraneous body had stopp'd in the *cæcum*. The fever became considerable, the pulse was small, the stools were mix'd with blood and other substances; the patient became dejected, was emaciated, and reduced to the greatest extremity. At last the fever and the other symptoms disappear'd, but the pulse remain'd contracted and small.

Then the patient resumed his flesh, and was in his natural state, in every respect, except that he had some transient pains, which reach'd from the right to the left loin. In this condition he remain'd for three months, and suffer'd so little pain that he thought the fork was dissolved, as people had persuaded him for his comfort. But in *June 1715* he felt intense pains in his left groin, which were accompanied with viscid, bilious, and purulent stools. These last symptoms continued till the twenty-fifth of *June*, when the patient, almost without any pain, discharged the extraneous body by stool.

The fork, which was silver, was black, rough all over like chagreen, and had lost a great deal of its weight.

The

The history of this fork brings to my remembrance an observation of *Platerus* †, with respect to a spoon swallow'd by a drunken man, who happen'd to be eating some milk with it. Some of the by-standers gave him a blow which plunged the spoon in his throat, whence it immediately fell into his stomach, and soon produced violent pains and gripes. This spoon was next day discharged by stool, tho' with a great deal of difficulty.

All these, and a great many other observations, which we shall relate in different points of light, are sufficient to convince us that, in general, there is incomparably less danger in plunging into the stomach hurtful bodies which stop in the œsophagus, and produce mortal symptoms, than in abandoning patients to the violence of these symptoms, which expose them to the most imminent danger; and that we ought not to hesitate to afford relief by risking a danger from which the patients may escape.

Having enter'd into a detail of the different means used by antient and modern practitioners, in order to depress extraneous bodies into the stomach, it remains that we speak of those which seem preferable to the rest in the present case.

Best means of plunging extraneous bodies in the present case.

M. Petit, a surgeon of *Nevers*, in vain attempted to extract a bone which a peasant had swallowed, and which was strongly engaged in the œsophagus. He therefore thought it expedient to plunge it into the stomach, and for that purpose first used a leek, but without success, because the bone was stopp'd in the middle of the œsophagus, to which the leek could not reach. The patient suffer'd a great deal, and was very much afraid for himself. In a word, the livid colour of his countenance gave the by-standers just reason to fear
left

XXI. Observati-
on, by *M. Petit*,
on a bone repell'd
into the stomach,
by a small mallet.

lest he should be suffocated. M. *Petit* invented a machine which succeeded. He melted a little lead, and took a piece of large iron wire crook'd in the form of a ring, which he immers'd in the melted lead, and when the lead was cold, he gave it, and the wire, a proper figure. He introduced this species of mallet into the oesophagus, strongly pushed the extraneous body, and made it fall into the stomach. The patient was forthwith freed from all his symptoms, but suffered a great deal during the operation.

The advantages of the mallet, on this occasion used by M. *Petit*, are confirmed by various observations, and among others by that related from *Antoine Maitre Jean*, a celebrated surgeon, by *Saviard* †. A man eating some soup in great haste, before he was aware, swallowed a bone which lay concealed among the cabbage. This bone being full of asperities, stopt in the middle of the oesophagus, so that it would neither move backwards nor forwards. The patient had so violent propensities to vomit, that he was in danger of being suffocated in the efforts he in vain made to throw up the extraneous body. *Maitre Jean*, both by means of a leek and a wax-candle, tried to repel this body into the stomach; but these methods were not forcible enough to disengage the body. During these attempts the symptoms were greatly augmented, and the danger became very imminent. *Maitre Jean* thought it expedient to use the leaden mallet, with which he readily dislodged the bone, and pushed it so far as the length of the iron stalk would permit; but as the stalk was not sufficiently long to push it into the stomach, he was oblig'd to get another similar instrument with a longer stalk, by which means he depressed the bone, immediately after which all the symptoms ceased.

To

† Observ. Chirurg. Obs. 65.

To the mallet we may add, the leaden body in form of an olive, fixed to the end of a large iron wire. We have before seen, in the fifth observation by M. Mesnier, that that surgeon used it to repel a bone lodged in the œsophagus into the stomach.

We may also refer to the same kind of instrument, that of *Albucasis* and *Verduc*, and the probe, or algalié, because these instruments may be employ'd in the same manner in similar cases.

The instrument ascribed to *Willis*, in which the sponge is tied to the end of a slip of whale-bone, and all the other manners of using the sponge in order to repel extraneous bodies lodged in the œsophagus into the stomach, may also be proper in the present case. M. *Heister** successfully used a piece of sponge fixed to the end of a splint of whale-bone, to repel a bone about an inch in breadth, which a peasant had swallowed. This bone had stopt in the œsophagus, and during twenty-four hours, various attempts had in vain been made to extract it.

M. *Quesnay*, in a similar case, very advantageously employed a piece of sponge, fixed to the end of a slip of whale-bone, and included in a sheep's gut.

XII. Observation,
by M. *Quesnay*,
on a bone repeli'd
by the sponge, fix-
ed to the end of a
piece of whale-
bone, and included
in a sheep's gut.

A large portion of the bone of a pullet's thigh, had stopt so low in the œsophagus, that it was impossible to extract it: This accident happen'd in the country. M. *Quesnay* found in the patient's lodging a piece of sponge, and a flat, ill-polish'd, flexible, and sufficiently long slip of whale-bone. He sent to the butcher of the town for a sheep's gut, of this he took a portion more than double the length of the whale-bone. He fix'd a piece of the sponge to the end of the whale-bone, and included both in the gut, and brought the remaining
portion

* Instit. Chirurg. Part. 2. Sect. 3. Cap. 92.

portion of the gut along that which included the whale-bone. This gut, which was very pliant and unctuous, furnished the whale-bone with a very soft and slippery covering, which greatly facilitated the operation, and rendered it supportable to the patient. Seven or eight days after, the bone presented itself at the anus, where it produced intense pains, but M. *Quesnay* being call'd, extracted it.

M. *Tostain*, surgeon of *St Lo*, has communicated to the academy a singular method to which he had recourse on a similar occasion. A man who was eating soup happened to swallow a triangular bone, whose angles had very sharp points. This bone stopp'd in the oesophagus, near the superior orifice of the stomach. The patient felt very intense pains, and fell into violent and almost continual convulsions. M. *Tostain*, in consultation with M. *Diguet*, also a surgeon of *St Lo*, in order to dislodge this bone, employ'd the white part of a leek, which did not succeed. He attempted to procure a vomiting by making the patient swallow a large portion of tepid water, hoping that the shocks of the vomiting would make the extraneous body change its place ; but all these attempts were to no purpose. M. *Tostain*, and his fellow-surgeon, were very much perplexed with respect to the method most proper to be taken on this occasion, but at last agreed to make the patient swallow small portions of sponge well dried on a fire shovel, and above this sponge they made the patient drink a great deal of water, which was stopp'd by the bone and portions of sponge which closed up the passage. M. *Tostain* informs us, that by this means the pain and convulsions were forthwith greatly diminish'd. He is of opinion, that this relief of the patient happen'd in consequence of the infla-

XXIII. Observation, by M. *Tostain*, on a bone depressed into the stomach by means of dry pieces of sponge.

inflation of the sponge, which dilated the sides of the œsophagus, and disengaged the points of the bone which prick'd the nervous fibres of that canal. The bone and portions of sponge were almost instantaneously convey'd into the stomach, by the weight of the water; for some time after the patient had slight pains in the stomach, which were succeeded with violent colics of six weeks continuance. We shall speak of the discharge of the bone, when we come to examine the methods which art furnishes for procuring or facilitating the expulsion of such bodies.

* This remark is made by M. *la Faye*, in his report with respect to this observation of M. *Tossain*.

A reflection here naturally presents itself with respect to this observation*. The sponge fallen into the stomach, not being capable of digestion, might, if it had not been cut very small, have distended itself more and more, acquired a greater bulk, and produc'd terrible symptoms; for in this case it might block up, at least in some measure, the pylorus, or stop at the valvule of the *cæcum*, and hinder the passage either of the chyle or the excrements, and also oppose the discharge of the extraneous body. In order the more surely to avoid this, it would be better, according to M. *la Faye*, to use one sufficiently large portion of sponge, fix'd to a large wax'd thread, or a small ribbon, in order to extract it after the extraneous body is depressed into the stomach.

Attempts to depress extraneous bodies, lodged in the œsophagus, into the stomach, have sometimes succeeded much better than could have been expected; for instead of depressing them, they have been extracted. It is not to be doubted but a great part of this success has been owing to chance; though we ought also to attribute it to the means used, and to allow that these means are sometimes preferable to others.

A lady

A lady swallowed a portion of the bone of a pullet's thigh. This bone in figure and length nearly resembled a quill cut for a tooth-picker. It stopt about an inch and an half beyond the pharynx, and instantly produced very intense pains. The lady, in order to have the most speedy relief, went to several surgeons, whom she did not find at home. At last she came to M. *Foubert's*, who, for her, was luckily at home, since she was ready to be suffocated.

XXIV. Observation, by M. *Foubert*, on a bone extracted with the wax-candles.

M. *Foubert* instantly order'd the wax-candle, called the *wax-candle of St Come*, to be warm'd, in order to soften it. Then he dipt it in oil, and introduced it into the oesophagus with a design to repel the bone into the stomach, but one of the extremities of the bone being very sharp, was happily engaged in the wax, and extracted with the candle.

M. *le Dran*, in a similar case, succeeded with a leek in the extraction of a very sharp bone, which stopt in the oesophagus of a certain person. Various means had been tried in vain to dislodge this extraneous body. M. *le Dran* having always an intention to extract the bone if possible, or to depress it if it should be necessary, with this double intention, took a pretty small leek, which he introduced into the oesophagus. When he had plunged it beyond the extraneous body, he retracted it, twisting it in the same direction, by which he perceived that he had in some measure brought the bone back to the pharynx. He repeated the same expedient a second time, and after having twisted the leek in an opposite direction, retracted it suddenly from the throat, and the bone followed the leek. By this means M. *le Dran* freed the patient, not only from the present danger in which he was, but also from the symptoms that the bone,

XXV. Observation, by M. *le Dran*, on a bone extracted by means of a leek.

which was very sharp, might have afterwards produced in the first organs of digestion, if it had been repell'd into the stomach.

It is, however, proper to observe, for the sake of young surgeons, that even in these cases, that is, when there are small bodies capable of making resistance lodged in the œsophagus, and when we have not time enough to attempt their extraction by the instruments mentioned, it is always much better to use the wax-candle a little soften'd, than the leek; because this last may break when we twist it in order to engage the body. The wax-candle is not subject to this inconvenience, and the wax, which is soften'd and tenacious, may more surely engage and bring away the extraneous body.

To all the methods already mentioned of extracting or repelling extraneous bodies lodg'd in the œsophagus, we may add the instrument which the *English* call *Provendor*, which is a kind of besom, or hair-broom for the stomach. This instrument is of two kinds: The first is a small slip of whalebone, to the extremity of which small portions of bare linen cloth are fixed. The *English* surgeons introduce this instrument into the stomach, giving it various motions from one side to the other, in order to cleanse that organ, and excite vomiting.

The second instrument is composed of a small quantity of the softest and most pliant hogs bristles, fix'd to a flexible piece of iron or brass wire, which may be cover'd with a slender ribbon. M. *Heister**, who describes it, says, that this instrument may be used not only to free the œsophagus from extraneous

* Institut. Chirurg. Part. 2. Sect. 3. Cap. 100.

neous bodies lodged in it; but also, according to the accounts of some celebrated physicians, to cleanse and purify the stomach, by exciting a vomiting. *M. Heister* describes the method of using this instrument in the following manner.

We make the patient, says he, swallow a glass of warm water, or rather brandy, in order the more easily to attenuate and resolve the mucosities lodg'd in the stomach. We dip the small brush in some proper liquor, and introduce it into the oesophagus by means of the stalk; then conveying it softly and cautiously into the stomach, we give it various motions upwards and downwards like the pestle of a syringe, after which we totally extract the instrument, and then the patient throws up the liquor he has drank, together with the humours which the brush has detach'd from the sides of the stomach.

The physicians who use this instrument order the operation to be frequently repeated, and pretend that this remedy, which they think superior to all other purgatives, is capable of preserving men to an extream old age, if it is repeated, first every week, then every fifteen days, and then every month. But, says *M. Heister*, however excellent this remedy is, I am of opinion that there are few examples of happy cures produced by its means. In a word, every person must necessarily be afraid of this instrument, for fear of the pain, the lesion of the parts, and even perhaps a total suffocation.

M. Houstet, member of the academy, assures us, that in *Germany* he saw a man who used this brush to gain a livelihood. For the sake of money, he introduced this instrument into his oesophagus, and thence into his stomach, where he turned it in different directions, as people do when they rinse bottles. This man afterwards extracted

XXVI. Observation, by *M. Houstet*, on the use of the stomach brush.

the instrument, and vomited up the liquor he had formerly drank.

It is very possible that this instrument, invented to cleanse the stomach by exciting a vomiting, may, in the present case, as M. *Heister* remarks, serve, either by introducing it into the œsophagus, to repel some extraneous bodies stopt in that canal, or, by retracting it, to draw them out. Besides, the expulsion of these bodies may also be procur'd by the vomiting this instrument excites.

This instrument may in the present case be of a particular use; for when a body plung'd in the stomach is there retain'd, because it presents itself ill to the orifice of the pylorus, as we have seen in several observations, the brush may in this case serve to dislodge the body, that it may, if possible, assume a more favourable determination, in order to pass thro' the intestines, or be thrown up by vomit.

It is to be observed that instruments of this kind are not of a very new invention, since we find them described in several authors, especially by *Bartholin**, and in a small work entitled *Sorberiana*. *Wedelius* and *Teichmeyerus* have also made some remarks on their use; and there are two figures of stomach-cleansers in *Rossæus*† and in *Heister's* Institut. Chirurg. ||

It is easy to conceive that, when a body which makes a great resistance is to be depressed, it is necessary that the stalk of the instrument should neither be too brittle nor too pliable. For this reason, a wax-candle much soften'd, a very slender slip of whale-bone, a burnt or rusty piece of wire, or a brittle piece of wood, are not proper in similar cases. Surgeons are, however, frequently obliged to use whatever comes in their way. *Platerus*§, in such cases,

* Epistolar. Cent. 2. pag. 53. & Cent. 5. Histor. 26.

† Epistolar. Medic. 47.

|| Tab. 21. Fig. 11.

§ Prax. Medic. Cap 6.

cases, proposes a large twig of birch for making the brush, because this wood is to be found every where, and bends easily if it is green. We may, says he, if it is dry, soak it in a warm lixivium, and anoint it with oil, in order to soften it: but, continues he, the birchen brushes used at present are too slender and weak for plunging extraneous bodies into the stomach; so that this domestic remedy is hitherto wanting. If we are in the country, we may have recourse to some bush or shrub, whose wood is sufficiently pliant and tough for a twig of a proper bulk and length. If we are in towns, we can generally find a slip of whale-bone, to the extremity of which, if sponge cannot be had, we must securely fix a proper quantity of worn linen.

The pressing condition of persons whose œsophagus is obstructed by extraneous bodies, often obliges surgeons to make reiterated attempts, which, by their irritation, greatly augment the danger.

Remarks on the danger of attempts too far carried.

M. *Pascal* has communicated to the academy an observation which shews the necessity of sometimes desisting from these attempts, and with the greatest expedition remedying the symptoms they have occasioned.

A man swallowed a large piece of a rib of mutton, which forthwith produced very violent symptoms. Several surgeons attempted both to extract this piece of bone, and to repel it into the stomach, by means of the leek, and some other instruments. But all their attempts were to no purpose, since they could not dislodge the body. Then M. *Pascal* being called, found the patient in such an extremity, that he breathed with great difficulty, and was ready to be suffocated. M. *Pascal*, who reasonably presumed that these symptoms were brought on by the reitera-

XXVII. Observation, by M. *Pascal*, on the danger of too frequent attempts to repel bodies lodg'd in the œsophagus.

ted attempts, which had induced an inflammation of the œsophagus, had forthwith recourse to venesection, which he repeated several times successively. By this means the symptoms were alleviated, and the patient only felt a fixed and constant pain about the middle of the œsophagus, where the extraneous body was lodg'd. *M. Pascal* then thought that he might safely employ some means of plunging the bone into the stomach. With this view he took a sufficiently long slip of whale-bone, the extremity of which he guarded with a roller of fine soft linen. This he introduced into the œsophagus, and by its means easily repelled the bone into the stomach. By this method the patient was perfectly cured of every symptom, except some slight pains and punctures in the place where the bone had been lodg'd, neither was he sensible of its discharge.

It frequently happens that those who have had an extraneous body lodg'd in the œsophagus for some time, afterwards complain of a pain in the part where the body was engag'd. This pain, which sometimes continues long, makes the patient generally believe that the body is not out of the œsophagus, tho', at the same time, the pain is only a consequence of the irritation caused by the body. This remark ought to render young surgeons cautious not to repeat attempts to remove a cause which no longer subsists.

*Fabricius Hildanus** gives us a fatal example of the disorders which, in similar cases, may be produced by obstinate and imprudent attempts to free the œsophagus from extraneous bodies thought to be engaged in it. A young man swallow'd a small bone, which he in vain tried to throw up by exciting a vomiting. He did not think of seeking for any assistance till the evening of the next day after the accident happen'd, when he applied to *Fabricius Hil-*

Hildanus: This surgeon used a catheter, which he introduced into the oesophagus, in order to discover the place where the bone was lodg'd, but could not discover it. He says he only perceived a certain narrowness in the oesophagus, on that side of the larynx where the patient felt the obscure pain. He afterwards used the instrument guarded with a piece of sponge, but succeeded no better than with the catheter. With this canula he perceived the same narrowness of the oesophagus, which, as the author judiciously thinks, proceeded from the irritation and inflammation by the bone. *Fabricius* was unwilling to try any farther means, for fear of irritating the part more and more, and inducing more violent symptoms. He prescribed for the patient such remedies as are indicated in inflammations; but the young man, being impatient, applied to an ignorant surgeon, who, by the reiterated introduction of various instruments into the oesophagus, so irritated the part, that the symptoms became much more violent, deglutition was entirely hinder'd, a considerable inflation and tension of the throat succeeded, and the respiration was very difficult. *Fabricius* being call'd again, employ'd all the remedies most properly indicated in similar cases, notwithstanding which, the symptoms were more and more augmented, and the patient died on the ninth day.

Upon opening the carcass, the oesophagus, and all the parts of the throat were found sphacelated, especially in the place where the bone first stuck. The inflammation had reach'd the lungs, the whole of which were become livid; but the bone could neither be found in the oesophagus nor in the stomach. It is to be presumed, as *Fabricius* thinks, that the bone was discharged by the efforts the patient made to throw it up, or that it had been depressed by the instruments used for that purpose.

In the *German Ephemerides* † there is mention made of a nearly similar case, which had equally fatal effects. A man swallow'd a bone of a very irregular figure, which was strongly engag'd in the sides of the œsophagus: A barber, in order to dislodge the bone, used a dry twig of a vine as large as a man's finger, which he forcibly introduced into the œsophagus. He drew it back and thrust it down several times, with a great deal of violence, by which means he at last depressed the bone into the stomach. But the patient, tho' deliver'd from the present danger, was not freed from the symptoms which superven'd, in consequence of the rude attempts the barber had made to repel the extraneous body. The inflexibility, the bulk, and perhaps the asperities of the instrument he used, join'd to the violent and reiterated efforts he made to dislodge the body, brought on an inflammation, which was succeeded by a gangrene of the œsophagus. Attempts were in vain made to remove the symptoms by venesections, moistening and lenitive potions, and other antiphlogistic remedies; for the inflammatory inflation became so considerable, that the patient was suffocated.

From these examples we see that, when we have carried our attempts as far as prudence will permit, and have not succeeded, it is far better (as *Fabricius ab Aquapendente* ‖ advises after *Paulus* and *Leonidas*) to leave all to nature and time, than to expose the patient to symptoms so fatal as those we have mention'd, by fresh and obstinate attempts to remove the extraneous body.

In circumstances of this kind, art may sometimes assist

† Dec. 3. ann. 1. Append. ad Obs. 153. p. 129.
‖ Operat. Chirurg. Part 2. Cap. 39.

assist nature, by means of internal and external remedies. Several practitioners prescribe gently mucilaginous and emollient portions, and other unctuous and relaxing medicines, proper to lubricate and dislodge the extraneous body. This is the practice of *Gay de*

Remedies to which we may have recourse, when we fail of success in freeing the oesophagus from extraneous bodies, by means of Instruments.

Chauliac §, who orders viscid and mucilaginous broths, gargarisms of boil'd wine, decoctions of dried figs, and unctions of the throat with the oils of violets or sweet almonds, or with melted butter. He says he has also often succeeded in dislodging bodies in the oesophagus, by daily exciting a vomiting, by a dram of the powder of water-cresses mix'd with warm water.

These remedies seem to be better indicated than gargarisms of oil with salt water and vinegar of thyme, which *Boyrus* * recommends on such occasions, and than the gargarisms of hydromel, which *Aetius* † orders in similar cases. This last quoted author also orders the patient to be nourished with clear broth prepared of clean barley, and to make him now and then swallow crumbs of bread dipp'd in warm hydromel: These remedies are better than the former. He also orders an application to the neck, of wool moisten'd with warm oil, or of a relaxing and suppurative cataplasm, prepared with meal of linseed boil'd in hydromel. By these remedies, continues the author, the part suppurates internally, and the extraneous body falls from the oesophagus into the stomach, along with the aliments the patient swallows.

The use of this kind of cataplasms is very ancient, since *Paulus Aegineta* ‖ recommends them after *Leonidas*; and, by way of application to the throat, orders

§ Chirurg. Franc. Dalechamps, chap. 321.

* Enchirid. seu veni-mecum, Lib. 1. Cap. 5.

† Chirurg. Franc. Dalechamps, chap. 32.

‖ Ibid.

orders maturative cataplasms, such as that of barley-meal boil'd in water and oil, in order, says the author, that the part where the body is lodg'd may be brought into suppuration, and that the body may afterwards spontaneously fall into the stomach.

This practice has been since follow'd by great surgeons. *Fabricius ab Aquapendente* § also employ'd emollient cataplasms, and unctions of oil of sweet almonds to the throat, together with gargarisms of boil'd wine, by which means, continues the author, it is to be expected that the small bone being, in some measure, corroded and suppurated, will be thrown up. *Fabricius Hildanus* † orders the neck to be rubb'd with the oils of lilly, dill, and sweet almonds. He also applied emollient and maturative cataplasms to the throat, and made the patient swallow a lohoch prepared of honey and mucilage; besides frequent recourse to injections of oil, or of an emollient decoction into the œsophagus.

Riedlinus * informs us that he successfully used injections into the œsophagus, in order to make an extraneous body descend into the stomach. A woman swallowed a large portion of cartilaginous flesh, which stopp'd about the middle of the œsophagus, where it totally block'd up the passage of all aliments, whether liquid or solid. The liquids were discharged by the nostrils as soon as they were swallow'd. A surgeon attempted to depress the piece of flesh into the stomach, by means of a piece of sponge fixed to the extremity of an iron wire, which he introduced pretty far into the œsophagus, but could not succeed in repelling the portion of flesh into the stomach. *Riedlinus* being call'd, forcibly injected an emollient decoction into the œsophagus, by means of a syringe. These injections twice or thrice

§ Operat. Chirurg. Part. 2. Cap. 39.

† Cent. 1. Obs. 32. & Cent. 5. Obs. 35.

* Lin. Medic. ann. 2. Octob. articul. 3.

thrice repeated, made the piece of flesh fall into the stomach.

Gargarisms and lohochs to me appear very useless, in cases of this nature; but the antients imagined that their influence extended to parts which they could not reach. For this reason it is not surprising that they should prescribe them in similar cases. But we do not discommend the other relaxing remedies they prescribe both internally and externally; for we must evidently perceive that those remedies must be of great use, either to alleviate the symptoms, and clear the oesophagus, by the relaxation they cause in the inflamed parts, or by disengaging the extraneous body, by the suppuration they may induce, or even by its putrefaction (if it is of a corruptible nature) which is greatly accelerated by the suppuration.

The indications presented by bodies which ought either to be depressed into the stomach, or retracted from the oesophagus, are so clear, and the means of fulfilling them so perspicuous, that I should not have imagined that the greatest degree of credulity could have induced men to find out mysterious arts of dislodging such bodies. *Gabriel*, however, in the *German Ephemerides* †, proposes one of these methods, in which, tho' to himself singular and incomprehensible, he reposes the greatest confidence. As for my own share, I should blush to relate the fact, if I did not think that the assurance with which the author speaks of its success, would not determine some person to make trial of it.

As a man was eating some bream fish, a bone of it happen'd to stick in his pharynx, and produced intense pain, accompanied with the agonies usual on similar occasions. All the persons at table with him successively attempted to extract it, but could not succeed. One of them, however, said he knew a method which, tho' it might appear ridiculous, was
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† Dec. 2, ann. 10. Obs. 79.

nevertheless very sure and easy, because he had often tried it with success. The method was to take such a bone of the same fish as the patient had swallowed, and place the point of it on the skin among the hairs of the forehead. All the guests laughed at this pretended certain expedient, and the patient, who stood in need of speedy assistance, look'd upon it as a piece of foolery. The person who propos'd the remedy made remonstrances, and ask'd for an opportunity of proving the reality or falshood of what he advanced. The patient comply'd, rather thro' complaisance, than from the hopes of a speedy assistance. But almost as soon as the bone was placed among the hairs, the patient began to laugh heartily, and being ask'd what was the cause of his joy, answer'd, that the bone was moving out of his throat, and in a few minutes after affirm'd that he did not feel the least pain, and did not know what was become of the bone. All the by-standers testified their joy by laughter, but still more by the surprise produced by a success so sudden, and apparently so impossible.

Perhaps, continues *Gabriel*, in ending his observation, they who read this fact may also laugh at it; but, for my part, I have it from an eye-witness, who is a man of veracity; and I have also tried it some time ago with the same success on my son, to whom the same accident happen'd. The author frankly confesses that he perceives no relation between the cause and the effect, but attempts to explain it by the sympathy there might be between the bone engaged in the throat, and that placed among the hairs.

Some may, perhaps, think that, in order to finish what relates to the different methods of extracting or depressing extraneous bodies lodg'd in the œsophagus, we should say something of applying cupping-glasses to the circumference of the neck, which

which some antient practitioners * recommend, in order, say they, to enlarge and dilate the passages, and remove the obstructions to deglutition ; that is, to facilitate the dislodgment of extraneous bodies. But it is at present so easy to perceive the uselessness of this practice, that I shall not speak of it.

Different Methods which may be employ'd, in order to facilitate the Discharge of extraneous Bodies, swallowed, or depressed into the Stomach.

When extraneous bodies, retain'd in the oesophagus, are once arrived in the stomach, either naturally, or by any of the means we have proposed, the patients are deliver'd from the pressing danger in which they were. But it is to be dreaded lest these bodies should wound the stomach and intestines, and produce a great many disorders, and even death. In order therefore to prevent these terrible effects, practitioners have prescribed different remedies, appropriated to the kind or matter of the extraneous bodies convey'd into the stomach.

Fabricius Hildanus † was called to see a lady who had swallow'd several pins. These sharp bodies produced pungent pains in the inferior part of the oesophagus, in the bottom of the stomach, and in several parts of the abdomen. This surgeon ordered the patient to be purged at intervals, by some lenitive medicine, in order to dislodge the pins, and carry them off. He order'd her at the same time to use an electuary, made of sugar and oil of sweet almonds, a dose of which she took twice or thrice a day, especially before her meals, in order to alleviate the pains by means of the oil and the sugar, which is an excellent balsamic for deterging and consolidating the small ulcerations which might have been

* *Guy de Chauliac, Aurelianus, Arcteus, Arculanus, Mesue, Platerus, Serapinerus, Medic. effic. Cap. 9. No. 1876, 77, 78.*

† *Cent. 6. Obs. 36.*

been produced by the pins. This lady for several months used these remedies with success.

The same practitioner *, in order to remedy the symptoms occasion'd by a pin which a girl had swallowed, order'd very fat broths, and barley soops, with butter and oil of sweet almonds. The patient, for ordinary drink, used milk of almonds, and was gently purged. By these means she was render'd very easy, and on the fourteenth day discharg'd the pin.

Ettmuller †, in order to relieve those who swallow needles, pins, fish-bones, glass, and other sharp bodies which stop in the stomach, with a view to carry off these bodies thro' the intestines, proposes broths, and thick creams of rice, barley and millet, or panadas. The author observes, that it is proper that the patient should abstain from drinking after these remedies, that the extraneous bodies may be cover'd, and, as it were, plaister'd over by these viscid and thick substances, and that they may be the more easily discharged by stool.

Segerus ‖, for a man who had swallow'd two large needles, successfully used cream of barley, laxative prunes, and all kinds of fat and laxative aliments, which he order'd to be succeeded by mild purgatives. These remedies, if we may judge of them by the success, were very beneficial, since, at the end of six days, the two needles were discharged by stool.

We have elsewhere seen, that *Meeckren* §, being called to the assistance of a child who had swallowed a piece of metal, of a very irregular figure, and furnish'd with several points, in vain attempted to dislodge that extraneous body, which at last slipp'd into the stomach, by the reiterated efforts which the child

* Cent. 1, Obs. 34. † Colleg. pract. Lib. 1. ‖ Bonet. Med. Sept. Lib. 3. de œsoph. affect. sect. 1. cap. 8. § Obs. Med. Chirurg. posthum. cap. 13.

child made to swallow the aliments offer'd him. *Meeckren* prescribed for his ordinary drink a decoction of barley, to which was added a small quantity of the syrups of violets and marsh-mallows. After this piece of metal fell into the stomach, the child had no pain, tho' it was not discover'd that he had discharged it by stool. The author very naturally thinks, that the piece of metal was dissolved in the stomach by means of these remedies alone, which, according to him, are gently acid.

We shall not here speak of the loadstone which *Serapion* * and *Montuus* † order to be exhibited internally to those who have swallow'd needles, or other portions of iron or steel; for it does not appear that the internal use of this stone can be of any benefit, tho' the author imagined that, by its means, he cured a man who had swallowed a considerably large key.

Pieces of copper may in time, as we have observed, produce very troublesome symptoms, by the rust or verdigrease which that metal contracts. *Wedelius* ‖ relates that, through negligence, a woman swallow'd a pretty large piece of copper money, which produced pains, and heavinesses of the stomach, which she felt when that organ was void of aliments, especially in the morning. Besides, she had continually the disagreeable taste of copper in her mouth. *Wedelius* prescribed fat and lubricating aliments, and order'd her to take, twice a day, from six to nine drops of the rectified spirit of salt. This remedy, says the author, insensibly diminished the taste of the copper, and the pains accompanied with the weight which the patient felt. The author finishes his observation by saying, that acid spirits do not hurt the stomach so much as is imagined, and that, in the present case, these remedies having

* *Schenkius*, Lib. 3. Cap. 10. † *Chirurg.* Cap. 19.

‖ *Bonnet. Med. Sept.* Lib. 3. de œsoph. affect. Sect. 1. Cap. 9.

having the power to dissolve the vitriolic part of silver and copper, consequently diminish the bulk and weight of these metals, and facilitate their passage thro' the pylorus and intestines.

The same author * gives us an instance of the precautions to be taken to prevent the symptoms which might have been produced by a piece of lead that a child swallowed. We have seen in this observation, elsewhere related, that the leaden seal, which was very large and thick, produced no other symptoms than intense pains along the œsophagus. Tho' these pains disappear'd as soon as the body descended into the stomach, yet the parents were greatly afraid lest terrible symptoms should succeed. They therefore applied to *Balthasar Glassius*, who order'd the patient to take distill'd vinegar: this acid menstruum procured the dissolution of the lead, and, according to the conjecture of the author, changed it into a salt of lead; for the discharge of the extraneous body by stool was not perceived.

Reflection on the use of acid, mineral, and vegetable spirits in the present case.

We must, however, make a reflection on these two last observations; it seems sufficiently possible, that acid, mineral, and vegetable spirits may dissolve the metallic particles of silver, copper, and lead retain'd in the stomach and intestines; but we are justly to dread the bad effects which may be produced on these parts, by the matter which results from the dissolution of copper and lead; for it is certain that verdigrease, taken internally, produces pains and violent colics, accompanied with a tenesmus, erosions, and ulcerations of the stomach and intestines, nauseous and violent vomitings, sometimes succeeded by convulsive motions, a difficult respiration, and even frequently suffocation.

Salt of lead may also, when taken in a large dose,

* *Ibid.*

dose, occasion terrible symptoms, such as severe colics, and heaviness of the stomach, suppression of urine, and constipation, trembling of the members, and even internal gangrenes, of which there are very remarkable examples.

I am of opinion that we ought, by gentle purges, or unctuous and oleous lenitives, to evacuate these poisons, in proportion as the dissolution has produced them, and order the patient to use milk and other softening and lubricating aliments, in order to defend the parts from their impression. It was no doubt with this view, that *Wedelius*, in conjunction with the acid spirit of salt, order'd pinguious aliments, though these remedies seem to be improperly exhibited together, because fat substances hinder the effect of the dissolvent. But the intention with which he prescribed them appeared of greater importance than the inconvenience we have observed.

Of the Extraction of extraneous Bodies stop'd at the Anus.

Extraneous bodies which have been plung'd into the stomach, and pass thro' the intestinal canal, often stop at the anus, where they cause pain, inflammation, and other symptoms. The surgeons call'd, after discovering the cause of the disorder, ought forthwith to remedy it by extracting such bodies.

We have related the history of a bone lodged in the inferior part of the œsophagus, which M. *Quesnay* push'd into the stomach, and which, sometime after, presented itself at the orifice of the rectum. The patient being rack'd with pain, called M. *Quesnay*, who easily discovered the cause of the disorder; he introduced his finger into the anus, and found the

XXVIII. Observation, by M. *Quesnay*, on a bone extracted from the anus by means of pincers.

bone, which was situated cross-ways somewhat obliquely, and had its inferior extremity engag'd in the rectum. On his finger he slipt in the pincers, seiz'd the bone as near to its superior extremity as he possibly could, and lifted it up higher, in order to disengage the inferior extremity, which had enter'd the side of the rectum. He then quitted the bone, in order to lay hold of it lower down, and extracted it without any pain to the patient.

XXIX. Observation, by M. Faget, on the same subject.

M. Faget was called to see a man afflicted with intense pains in the fundament. He had all the symptoms of an inflammation of the abdomen. The tension and pain were considerable in the region of the bladder, and these symptoms were accompanied with a retention of urine. The patient had been speedily blooded seven or eight times, had used the bath, and had emollient fomentations and cataplasms applied to his abdomen and anus. M. Faget, upon his first seeing the patient, convey'd his finger into the anus, and passing it beyond the *musculi elevatores* of the anus, perceived a hard body strongly adhering to the intestine, in which it was situated almost cross-ways. He introduc'd his pincers, with which he laid hold of the extraneous body, moved it from side to side for fear of wounding the bladder, which was full of urine *, and extracted it very easily. It was a bone of mutton, as large as a quill, seven lines long, and sharp at the extremities. The patient had swallow'd it eight days before, when eating hach'd mutton.

We have before seen the observation communicated.

* If the symptoms had been less pressing, M. Faget would have prob'd the patient, in order to empty the bladder, which was in danger of being wounded by the point of the bone.

cated by M. *Tostain*, on a bone convey'd into the stomach by means of small pieces of sponge which he made the patient swallow, and a large quantity of water which he order'd him to drink afterwards. This bone, and perhaps the sponge, at first occasioned obscure pains in the stomach, and afterwards violent colics in the intestines during a month. Thus the extraneous body, by this circumstance, sufficiently indicated the road it took. At last, about the end of this time, the hemorrhoids, to which the patient had been subject for some years, afflicted him more severely than usual. On this occasion he consulted M. *Tostain*, who, instead of the hemorrhoids, found the bone, which by one of its extremities had pierced the intestine, and some other points of it were also engaged in the sides of the rectum. M. *Tostain*, in order to disengage one of the points, was obliged to make a small incision in the side of the intestine. He afterwards extracted the bone with a great deal of ease. After the extraction of this extraneous body the patient felt no more pain in the stomach, and being freed from his colic, was entirely cur'd on the eighth day.

XXX. Observation, by M. *Tostain*, on the same subject.

In *Saviard*† we find a nearly similar observation. This surgeon was called to visit an acquaintance, who felt some pains in the anus, and was afraid of an approaching fistula. *Saviard* examin'd the whole circumference of the fundament, where he observ'd neither redness nor tumor, but perceived a small hardness very deep in the anus. He introduced his fore-finger, with which he felt a bone. He took a crow's-bill, which he slid along his finger, and laid hold of the body with a design to extract it, but it was retain'd by points which were engaged in the wrinkles of the rectum. *Saviard* was, like M. *To-*

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stain,

† Observ. Chirurg. Observ. 66.

stain, oblig'd, before he could extract the body, to make an incision in that part of the intestine where the body was engaged by its point. The patient was cured, very soon after the operation, by means of some vulnerary injections made into the rectum.

Severinus * says we ought to have recourse to cupping-glasses, in order to attract bodies lodged in the fundament. But no good effect can be expected from such a practice, in cases where the finger, and even instruments, would prove ineffectual.

We shall afterwards see that these bodies frequently occasion, in the fundament, very considerable disorders, which might be frequently prevented by being more attentive to causes of this kind. Surgeons are generally content with examining the affected part externally, and applying remedies which cannot stop the progress of the disorder. At last the cause is discover'd, but it is often after it has done a great deal of harm. *Meeckren*†, however, relates a case in which the patient was reliev'd more speedily, though he was more indebted to chance than to the care of the surgeon.

A pretty long jaw-bone of a turbot, being stop'd in the rectum, excited very intense pains in that part. A very ardent fever supervened, accompanied with a suppression of the fæces. The patient suspected that internal hemorrhoids produced all these symptoms. He called *Meeckren*, who perceiv'd neither tumor nor inflammation in the part. This practitioner prescribed venesections, anodyne liniments, clysters and emollient cataplasms. The apothecary, in exhibiting a clyster, perceived that a hard body resisted the pipe of the syringe. *Meeckren* being informed of this circumstance, introduced his finger into the anus, and felt the bone situated cross-

* Medic. effic. Cap. 9. No. 1895.

† Observ. Med. Chirurg. Cap. 36.

cross-ways in the rectum, and at its extremities engaged in the sides of that intestine. He extracted it with his fingers, but the operation was very difficult to the surgeon, and very painful to the patient. The symptoms were alleviated after the extraction of the extraneous body, and the patient was very soon cured by detergent injections made into the anus. The patient said he remembered to have swallow'd the bone about eight days before. This body had produced considerably violent pains, and colics in the whole intestinal canal. The figure of this bone is to be seen in the author*.

In the same author† we are inform'd that, in a similar case, *Tbolinx* found a method of preventing the pains, and rendering the extraction of such a body more easy. There was, as in the former case, a jaw-bone of a fish situated cross-ways in the rectum. This surgeon cut it in two with his scissars, and afterwards extracted the two pieces with a great deal of ease. In the *German Ephemerides*|| we have a case related, in which the same practice was used with equal success, for extracting the jaw-bone of a pike, which stuck in the same part.

Marchettis § relates a fact which does not appear foreign to our subject, if we consider the indication which was to be fulfilled. But more dexterity and industry were requisite than in the preceding case, to prevent the pains of the patient, in extracting the extraneous bodies lodged in the fundament. Some young students wanted to play a malicious trick to a common strumpet; they therefore contrived to thrust into her anus the frozen tail of a hog; they cut the hairs pretty short, that they might be the more pungent and stiff. They dipp'd it in oil, and forcibly introduced its largest extremity into her

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anus,

* Pag. 160. Obs. Med. Chirurg. cap. 36.

† Ibid.

|| Dec. 3. ann. 2. Obs. 8.
ani. cap. 7.

§ Obs. Med. Chir. rarior. syllog. de fistul.

anus, till there were only about three finger-breadths of it left externally. Several attempts were made to extract it, but as it could only be pull'd against the grain of the hairs, the bristles enter'd into the membranes of the rectum, and produced intense pains. In order to alleviate those pains, the patient was order'd to take several oleous remedies by the mouth; and an attempt was made, by means of a speculum, to dilate her anus so far as that the hog's tail might be extracted without violence. But all these efforts were to no purpose, and terrible symptoms succeeded, such as a violent vomiting, an obstinate costiveness, a very ardent fever, and intense pains in the whole of the adomen. On the sixth day M. *Marchettis* was consulted. This practitioner, being inform'd of every thing that had been done, invented a very simple, but at the same time, a very ingenious method: He took a hollow reed, about two feet long, and prepared one of its extremities in such a manner as that he could easily introduce it into the anus, and totally include the hog's tail in it, in order afterwards to extract it, without producing any pain to the patient. With this view, he tied a strong wax'd thread to that part of the hog's tail which was without the anus. This thread he introduced into the reed, which with one hand he push'd into the rectum, whilst with the other he held the thread, that the hog's tail might not be repell'd by thrusting the canula into the fundament. He at last included the whole of the tail in the reed, and speedily deliver'd the patient as well from the danger of death, as from the miserable condition in which she was. She forthwith discharged a large quantity of fæces, which had been retained for six days by the extraneous body*.

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* The hollow reed, on this occasion used by *Marchettis*, has some relation to the canulas used by *Paul Ægineta* (Lib. 6. Cap. 88.) and most of the antient surgeons, to extract bearded darts from wounds, in order to prevent the dilaceration of the parts.

Zacutus * gives us the history of an extraneous body of a very different nature, which had enter'd the anus. It was a leech, which being applied to the hemorrhoids, flipp'd into the rectum. *Zacutus* order'd the juice of an onion to be injected into the anus, by which means the leech was discharged almost dead. The author thinks that the same advantage might be reap'd from the dung of an ox, or beaver. But I am of opinion that very salt water, or a decoction of tobacco, injected gently and in small quantities at a time, would be much preferable in similar cases.

Fourth Case.

Extraneous Bodies which can neither be extracted, nor discharged by the natural Passages.

This fourth part shall also consist of examples; since the practice recommended in it can most exactly be illustrated by facts, because it varies as much as the facts themselves. Sometimes nature alone, in an unexpected manner, delivers herself from the extraneous bodies which she could not expel by the ordinary passages. Sometimes art concurs with nature, and assists her in the expulsion of these bodies. Sometimes art alone, by extraordinary efforts, has with success attempted the extraction of them. In order to examine these different cases, we must take a view of all the circumstances and singularities which determine and regulate the operations of Nature and Art. Now, we cannot accurately enter into this detail, without the assistance of examples, and without relating the facts which include these circumstances. In a fundamental Memoir, where every thing ought to be founded on experience, it is not sufficient to propose cases, to

Extraneous bodies which force a passage through the parts.

pronounce arbitrarily, and establish principles at random. The readers ought, in such productions, to find all the experience necessary to support the decisions of the author, and to determine themselves with evidence, independently of his ideas.

Skilful surgeons do not, in extraordinary cases, regulate their practice on the suppositions and conjectures of others. Guided by the facts they have found in observators, they are in these cases attentive to the operations of nature, and are always conducted only by real indications, which they draw from the cause and state of the disorder they intend to remove. There are, indeed, in almost all cases, certain general indications, which are so easily discovered, that it is not necessary to illustrate them by examples. There is one indication, especially, in the case we now examine, which presents itself so clearly, that it cannot even escape persons who are unacquainted with surgery. Most of the observations we are about to relate, seem to be confined to abscesses occasion'd by extraneous bodies included in them. Now, every one who finds an extraneous body included in an abscess, will be easily determin'd what method to take. It is not this indication alone which we have in view, by relating various examples of abscesses of this kind, since our design is also to shew the reader the different cases in which these abscesses happen, the various bodies which most generally produce them, the several symptoms which precede, accompany and follow them, the parts which are most exposed to them, the cases in which they may be foreseen, and the several particular indications which arise from this vast variety. All these things are necessary to arrive at the perfection of art in each of the points of practice, which we at present consider, and which can only be acquired by the assistance of facts.

When the form of extraneous bodies, or some other

ther circumstances, retain them in such a manner as that they can neither be extracted, nor expell'd thro' the ordinary passages, they penetrate the parts, either by making passages into them, or by exciting in them inflammations, follow'd by gangrenes or abscesses, which open passages thro' which such extraneous substances are expell'd from the body. At other times these bodies are fixed in some particular part of the first organs of digestion, where they often produce such a disorder that, if the patients are destitute of relief, their death is certain. We shall first speak of such bodies as, quitting the natural roads, make a passage for themselves thro' the parts. Then we shall enquire what methods of assistance art can furnish, when these bodies are retained in the first organs of digestion, and there produce pressing symptoms.

Tho' the œsophagus is the part in which these bodies are most generally engaged, yet it seems to be least exposed to their continuance, at least a continuance sufficiently long to bring on suppurations and abscesses, because they are within reach of being either extracted or plunged into the stomach, by the hands and proper instruments. There are, however, a great many cases where it is not possible to succeed in these operations. Of this we find a great many examples in the works of practical writers. A small, but very sharp bone was engaged in a man's throat: All kinds of methods were in vain used to dislodge it; it produced a violent pain, which was succeeded by an inflammation, and a tumor, which appeared externally on the neck. *Platerus* * applied a maturative cataplasim, and the abscess being form'd, it was open'd, and the bone was discharged with the pus. *Forestus* † relates a similar observation from *Arculanus*.

Abcesses caused by extraneous bodies stopp'd in the œsophagus.

The

* Lib. 4. Obs. 13. † Lib. 15. Schol. ad Obs. 28.

The bones which are most readily engaged in the œsophagus, are, as we have observed, fish-bones; because these being generally very sharp, easily penetrate the sides of that canal. In short, they are there sometimes so engaged, that it is not possible to extract them. *Fabricius Hildanus* || and *Hollerius* § give us each an observation on a large fish-bone retained in the throat, which produced violent pain, hoarseness, and an extremely difficult deglutition and respiration. All these symptoms were succeeded by abscesses on the neck, which afforded a passage to the extraneous body, only with this difference, that, in the case mention'd by *Hollerius*, the abscess was form'd very soon, whereas in that related by *Fabricius*, it was a long time before the abscess was form'd. The symptoms we have enumerated appeared at first, and terminated in a hard tumor, free from pain, and pretty much like a steatoma. This tumor *Hildanus* chang'd into an abscess, at the end of two years, by the use of suppuratives; *Glandorpe* opened the abscess, and the bone was discharged with the pus.

Needles and pins, stopp'd in the throat, often pass through the flesh, without a suppuration.

Long, smooth and sharp bodies, such as needles and pins, which easily make insensible passages thro' the parts, are not so ready as fish-bones to form abscesses which procure a discharge of them. On the contrary, we see that, without producing an abscess, they sometimes penetrate to the surface of the neck.

XXXI. Observation, by M. Rivius, on a needle extracted from the neck by incision.

A lady, in moving her head, suddenly felt an intense pain in the middle and lateral right part of her neck, where for some days past there had been form'd a small tumor, which was without hardness and inflammation, and almost as broad as a farthing. The cries of the lady astonished

nished every one who saw her ; so that it was thought she had dislocated some of the vertebræ of her neck. M. *Rivals* being call'd, examined the tumor, which was only a small elevation, that to him seem'd to be form'd by an extraneous body which raised the skin, and this circumstance determin'd him to extract it. He open'd this tumor with a lancet, and extracted from it a needle fifteen lines long at least, which was plunged horizontally in the muscles. It had not contracted rust, and the head of it was cover'd with a lump of fat as large as a pea. This simple operation forthwith freed the patient from her pain, and three days after the wound was entirely cured.

Before M. *Rivals* made the incision, he carefully examined the surface of the tumor, in order to see whether he could not discover some mark of the passage of that extraneous body ; but he could perceive nothing which could make him suspect that this body had enter'd externally, especially when he knew that it was a needle, that it had been swallowed, and thro' the œsophagus penetrated into the flesh. The patient remember'd to have swallowed a needle five or six years before.

Another needle being engaged in the œsophagus, pierced the flesh, and insensibly made a road for itself on the side of the neck. A month after it was lodg'd behind the right ear. *Reies* * perceiving this, made a small incision in the skin, and with small pincers extracted the needle, which presented its point.

Tho' similar operations are clearly indicated, it is nevertheless expedient to relate examples of them, in order to enable young surgeons, who are not well acquainted with the practice of their art, to foresee such cases, and who are too timorous to have recourse at first to these operations. These examples would

* Camp. Elys. jucund. quæst. 92. sect. 1. pag. 1175.

would have shewn the surgeon mention'd by *Verduc*† the method he ought to have taken with a woman who swallow'd a needle. This needle stopp'd in her throat towards the *amygdalæ*, where it remain'd for nine whole years, without producing any great inconvenience. It was easily felt thro' the skin of the neck. This woman was afraid lest the needle should change its situation, and suffocate her. At the *Spa* she consulted an ignorant surgeon, who durst not make an incision to extract the extraneous body. A quack, being more bold, open'd the skin in the part where the needle was lodg'd: he dilated the wound, and, probably to make his operation appear the more mysterious, he put a piece of load-stone on the needle. He did not remove this dressing till eight days after, when, in lifting the load-stone, he also extracted the needle which adhered to it.

Perhaps, says *Verduc*, this quack wanted to imitate the woman mentioned by *Fabricius Hildanus*, who used a load-stone to extract a splinter of steel, which had enter'd into the eye. *Verduc* might have rather made him imitate *Kerckringius*‖, who follow'd precisely the same practice in the present case. A girl swallow'd a needle, which pierced the side of the oesophagus, and enter'd the muscular part of the neck. *Kerckringius* made an incision on the extraneous body, and applied a small portion of load-stone, which extracted the needle.

Extraneous bodies, especially needles and pins, sometimes penetrate far into the flesh and fat, before they stop in a part, and procure a vent to themselves externally. For this reason it is proper to open a passage for them, as soon as we feel them in any part near the skin, lest they should be convey'd to any of the viscera, and produce violent disorders, and even death.

A lady

† Operat. Chirurg. cap. 25.

‖ Obs. anatom. Obs. 44.

A lady applied to M. *Petit* to force from her an extraneous body, which had stuck in her throat in swallowing a spoonful of soup. M. *Petit*, in vain, made several attempts to extract this bone. Next day the patient felt it farther down below the thyroide cartilage; she used a leek, the handle of a whip, and a slip of whale-bone in order to depress it; but all these methods did not succeed, though they seem'd to dislodge it, at least for a little; for she swallowed more easily, and had but a slight pain, which was only perceptible when she made violent inspirations, as when she cough'd, spit, vomited, or sneez'd. More than a year after, the extraneous body was felt near the joining of the clavicles to the sternum. M. *Petit* observed, by the touch, that this body was situated cross-ways. He felt its two extremities, the one on the right side, and nearest the skin, and the other on the left side, and situated more deep. Next month M. *Petit* no longer felt the extremity which was on the left side, and that on the right was so near the skin that it raised it, and formed a visible elevation when she turned her head to the opposite side. Three months after, M. *Petit* finding that the extraneous body had advanced in the fat under the skin which covers the trunk of the shoulder, proposed to the patient to extract the body, and she consenting, he made a small incision with a lancet, and discover'd a pin, which he extracted. It was all over black, except the head, on which there were some small spots of verdigrease.

XXXII. Observation, by M. *Petit*, on a pin extracted from the shoulder by incision.

On this occasion M. *Petit* published a small dissertation*, in which he shews, in a very satisfactory manner, how these bodies pass through the texture of the parts, and relates a very remarkable fact on the same subject.

He

* See the *French Mercury* November 1721.

XXXIII. Observation, by M. *Petit*, on a pin found in the mesentery.

He informs us, that, upon opening the carcass of a hang'd woman, he found a pin lodged in the mesentery, three finger-breadths from the part where the intestines are tied together. This pin had not certainly arrived there, without having previously pierced the intestine in the part where it is attach'd to the mesentery.

XXXIV.
XXXV. and
XXXVI. Observation by Messrs *Rivals* and *le Dran*, the father and son, on pins found in different parts, under the skin.

If M. *Petit* had not by incision extracted the pin from this lady's shoulder, it might have been convey'd farther. M. *Rivals* assures us, that he extracted three or four pins, which had penetrated to the side. M. *le Dran*, the father, found, in the middle of a man's arm, a pin which had been swallowed several years before. M. *le Dran*, the son, found a pin at the side of one of the veins of the arm, in bleeding a patient. *Rondeletius*† also found a pin all covered over with rust, in an abscess of the arm. *Saviard*|| extracted a needle lodg'd in the deltoid muscle: but these kinds of extraneous bodies sometimes proceed much farther.

XXXVII. Observation, by M. *Petit*, on the same subject.

M. *Petit* found a pin which had arrived at the root of the middle toe, and he observes, that it would not have been surprizing if this pin had turned its point, and ascended along the leg and thigh, because the point always makes the passage, and the adjacent parts always make an effort to push it forwards.

*Moinichen** relates, that a woman who had swallowed a needle was not incommoded by it for four years; about the end of which time she felt a pungent pain in the inner side of the leg, where a small tumor appeared. A diachylum plaister was applied

† In Libr. de aquatil. Cap. de cancr. fluvial.

|| Observ. Chirurg. Obs. 67.

* Obs. Med. Chirurg. Obs. 21.

plied to it, and on the third day, the surgeon with a pair of pincers extracted the needle by the point, which pierced the skin: A similar example is found in *Bartholin* *. *Rodericus a Castro* † furnishes us with a case still more surprizing. A child of six years of age swallowed a needle, which was discharged from the leg more than eight years after.

From these observations, 'tis sufficiently evident how easily such bodies are convey'd from one part to another, and how prudent it is to extract them as soon as they are perceived, because they may take less favourable roads. We have actually seen a needle, which being swallowed, and having penetrated thro' the membrane of the stomach into the substance of the liver, proved mortal ‖. The deceased M. *Arnaud* and *Saviard* § have found large pins, which being lodged in the testicles, have there occasioned carcinomatous tumors. We find an example of the same kind in the works of M. *Bayle* ||: A man for a long time complain'd of a very intense pain in the hypogastric region, where there appeared an inflammatory tumor, accompanied with an acute fever. This tumor being changed into an abscess, was opened five or six finger-breadths below the navel. It discharged a large quantity of very fetid pus, which continued to flow copiously during several months. On this occasion, it was observ'd that the urine was discharged from the wound along with the pus, which made it suspected that the urethra or bladder were excoriated by the matter. At last, by the length of the suppuration, the patient fell into a consumption and died. Upon opening his carcass, the ureter on the side of the abscess was totally ulcerated, and full of purulent matter; but it was still more surprizing to find
a pin

* Cent. 6. histor. 99.

† Lib. 4. de morb. mulier. cap. 6.

‖ *Schenkius*, Obser. Med. Chirur. Lib. 3. Obs. 10.

§ Obs. Chirurg. Obs. 56. & Journal des Sçavans Novembre 1691.

|| Nouvelles de la Republique de Lettres, Janvier 1695. Art. 5.

a pin sticking in the substance of the ureter. We meet with a nearly similar fact in *Blancard* *. It has also frequently happen'd, that several extraneous bodies, and, among others, needles and pins, have penetrated into the bladder, and generated stones, by serving as a basis or kernel to petrifying matter.†

Practical writers furnish us with a great many examples of the ears of dogs-grass, corn, barley, and other grains of that kind, which have made passages for themselves, through abscesses form'd in various parts of the circumference of the breast. The situation of these abscesses in certain parts of the breast, far distant from the œsophagus, has made some practitioners believe, that such bodies had not passed through the œsophagus, but that they had slipt into the trachea arteria, and been carried thro' the ramifications of the bronchia, to the surface of the lungs, where they had excited an inflammation followed by an abscess, which had penetrated between the ribs, by means of the adherence which the surface of the inflam'd lungs had contracted with the pleura.

We can hardly adopt this explication, when we reflect, that they are ears of corn and barley which make their way through these passages. It is not to be presumed that any person can swallow an ear of these grains, without distinguishing whether it has entered into his throat, or into his larynx. A body of such a bulk cannot be received into the trachea arteria, without forthwith producing the most

* *Anatom. pract.* Cent. 1. Obs. 42.

† *Binninger.* Cent. 1. Obs. 20. *Moinichen.* Obs. Med. Chirurg. Obs. 22. *Tulpius.* Obs. Lib. 3. cap. 9. *Hildanus.* Oper. pag. 710. *Transf. Phil. Lister.* ann. 1685. no. 168. art. 3. *idem.* *Molyneux.* ann. 1700. no. 260. art. 3. *Ephemerid.* Cent. 1. & 2. Obs. 94. & Dec. 3. ann. 5. & 6. Obs. 253. *Alex. Bened.* Lib. 2. Anat. cap. 22. *Pare.* Lib. 24. cap. 10. *Jo. Matth. Hesi.* quæst. annex. Cas. 1. Obs. Med. *J. R. Camerar.* memor. Cent. 7. part. 10. *Andre' Brown* Obs. de Med. d'Edinbourg, Tom. 4. art. 16.

most terrible symptoms and death. The ramifications of the bronchia cannot furnish a passage for such a body to the surface of the lungs. We ought not to suppose so many impossibilities, in order to avoid the difficulty of comprehending how these extraneous bodies may, in passing thro' the œsophagus, go and form abscesses in parts so distant from that canal. But this difficulty ought not to hinder us from attempting to penetrate into the secret tracts, which nature follows in her most obscure operations.

The situation of the œsophagus, along and on the side of the vertebræ of the back, will easily make us perceive how an extraneous body, stopt in the œsophagus, may, by exciting an inflammation, occasion a suppuration, which may form a passage, through the membranes of the œsophagus and the pleura, into the texture of the fat, in which it may dig a road, that terminates by an external abscess, at a greater or smaller distance. The abettors of the other opinion ought to support themselves by a variety of examples or facts relating to it, before they can compel us to embrace their sentiments.

M. *Labath* has, however, communicated to us an observation on an abscess of this kind, which seems by the symptoms enumerated in it, to evince, that sometimes these bodies actually pass through the lungs. He says, that some young people were diverting themselves by placing a blade of grass on their tongues, and trying if they could pronounce certain words without swallowing it. Two of these young people had placed the beards innermost, and the point externally, and as soon as they attempted to speak, they swallowed the blade, but were not incommoded by it. A third, of about sixteen years of age, placed the blade in an opposite direction;

XXXVIII. Observation, by M. *Labath*, on a blade of grass extracted from an abscess below the nipple.

scarcely had this young man pronounced the two or three words, on which they had agreed, 'till the blade slipped into his throat. The young man instantly lost his speech, and respired with so much difficulty, that it was thought he was on the point of being suffocated. He continued in this condition for some minutes. His companions tried, by shaking and other methods, to make him throw up the blade of grass. Though their attempts did not produce precisely the designed effect, yet they were not entirely useless, since they made the blade descend, and at last deliver'd the young man from the pressing danger in which he was. However, his respiration continued very difficult, and next day he was seized with a violent fever, which began with a shivering, and was very soon succeeded by a troublesome cough, a spitting of blood, a pain of the side, and a great difficulty of respiration. This disorder was treated like a pleurisy, the young man was blooded nine times in two days, without any relief; he was also reduced to a very strict regimen, and had a vulnerary ptisan prescribed for him.

On the seventh day of the disorder, a tumor as large as an egg appeared between the 6th and 7th of the true ribs, counting from above downwards, three finger-breadths below the left nipple. This tumor was accompanied with a very intense pain. Emollient and maturing cataplasms were applied to it, and at last the diachylum plaister. It was formed into an abscess, which, on the third day, opened of its own accord. When the patient's mother removed the plaister, a large quantity of very fetid pus was discharged. The evacuation stopped all on a sudden, and the mother perceived a hard body, which she extracted, and which was the blade of grass, whose pedicle had come two or three lines out of the ulcer. The whole of the blade was white,

white, fetid, and, as it were, half calcined. The cure was terminated by vulnerary broths, gentle purgatives, and asses milk mix'd with water of quick-lime.

The young man's mother immediately carried the blade to M. *de Lalaurie*, the physician who had attended the patient. He sent it, together with the observation, to the Royal Academy of Sciences at *Montpellier*, which, for that reason, admitted him as a correspondent member.

The disorders occasioned by this blade do not induce us to believe that it made its way exactly thro' one of the ramifications of the bronchia, granting that it passed thro' the lungs, as M. *Labatb* thinks, nor that it was convey'd thro' this passage to the surface of that organ. It is more probable that it would have rather penetrated through the substance of the lungs themselves, than have been convey'd thither through the bronchia; for these, in consequence of their ramifications, not only become very soon insufficient to furnish a passage for such a body, but the inflammation of the lungs immediately caused by the blade in its passage all the way, and which had compressed the bronchia, must have entirely block'd up all passage through these vessels.

It is even to be doubted whether the blade actually passed through the lungs; for this blade might at first have been partly engaged in the throat, and might by its extremity, furnish'd with rough and denticulated beards, have violently irritated the larynx, and produced the symptoms which appeared in the beginning. The inflammation which it must have afterwards caused in the oesophagus, might have communicated itself to the lungs, and occasioned all the symptoms usual in inflammations of that organ. Of this we have before seen several examples.

XXXIX. Observation, by M. le Beuf, on the same subject.

The following observation, sent to the academy by M. le Beuf, appears, when we reflect on the situation of the abscess, sufficiently agreeable to these ideas. A child six months old swallowed an ear of corn with which he was playing. This ear produced symptoms nearly similar to those which happened in the preceding case. The violent cough, with which the child was instantly seized, did not favour the descent of the ear, because its beards were rather disposed in such a direction as might make it ascend. This extraneous body excited, in the posterior part of the breast, a considerable inflammation, which was succeeded with an abscess on the back near the fifth true rib, in which the ear of the corn was found.

M. le Beuf is of opinion, that this ear passed through the trachea arteria, and his sentiment is at least authorised by the suffrage of several authors who relate similar facts. *Ambrose Paré** informs us, that a young boy at school swallowed a bearded blade of grass, which having produced several terrible symptoms, was afterwards discharged, entire, from one of the interstices of the ribs. The patient was attended by *Fernelius*. "It seems to me," says *Paré*, as if nature had committed an error "in expelling this ear from the substance of the "lungs, after it had penetrated the pleura and intercostal muscles."

Ledelius† furnishes us with an observation which appears so decisive, that, I believe, no person can in certain cases absolutely reject this opinion. A girl of a year old swallowed an ear of wheat which she held in her mouth. The patient was forthwith seized with a violent cough, accompanied with so great a difficulty of respiration, that she was ready to

* Lib. 25. Cap. 6. Sect. 1. Cap. 15.

† Bonet. Med. Sept. Lib. 3. de œsoph. affect. hemerid. ann. 2 & 10. Dec. 1. Obs. 107.

to be suffocated. A surgeon being called, examin'd her throat and œsophagus, where he found nothing extraneous. He in vain exhibited several remedies; on the fifteenth day the patient vomited a very fetid pus, and on the same day a tumor appeared near the superior ribs of the right side. The surgeon feeling a fluctuation in this tumor, opened it, and extracted the ear, which presented itself first, and which was succeeded by a large quantity of pus. The child, during the whole cure, continued to vomit a purulent matter; and though, says the author, there was an aperture in the pleura, which was discovered by the whistling of the air discharged from the wound, yet the child was perfectly cured in five weeks.

*Helmontius**, *Polisius†*, *Paullinus‖*, the *Acta Leip-sica§*, and the *German Ephemerides* ‡ supply us with a great many observations on the same subject.

It may be thought that extraneous bodies which go out of the natural passages, or produce any disorders after their descent into the stomach or intestines, have no relation to the subject we treat, which seems confined to extraneous bodies engaged in the œsophagus. But if we reflect that these disorders are often caused by bodies which have been thrust into the stomach, and that the surgeon cannot compleat a cure if he abandons his patient to the symptoms which may be the consequences of his operation, and against which his assistance is necessary, it will easily be perceived that we should not do full justice to our subject, if we did not examine the helps

Extraneous bodies which have stopt in the stomach, and have been discharged from external abscesses.

F f 3

which

* *Tract. de inject. mat. sect. 7. pag. 477.*

† *Bonet. Med. Sept. Lib. 6. de affect. extern. sect. 1. Obs. 6.*

‖ *Ibid. Obs. 5. § Ann. 1710. Mart. pag. 137.*

‡ *Dec. 1. ann. 8. Obs. 81. Dec. 2. ann. 1. Obs. 144. Cent. 1. & 2. Append.*

which surgery can furnish in similar circumstances. We shall, therefore, enter into a detail, not only of those extraneous bodies, which, being stopt in the œsophagus, and thrust into the stomach, have made a passage through the flesh, but also of those which, without sticking in the œsophagus, have fallen into the stomach, and also made their way through the texture of the parts; because the indications presented are the same in both cases, and because the examples we find of them in practical writers, are equally instructive with respect to our subject.

Though it seems probable that needles and pins arrived in the stomach may be easily cover'd and carried off by the aliments through the intestines, yet it frequently happens, that they make passages for themselves through the sides of that organ. *Benivenius** informs us, that a woman swallowed a large copper needle, which for two years remained in her stomach, and produced violent and almost continual pains, which threw the patient into a consumption and an extreme emaciation. The physicians had for a long time, in vain, exhibited a great many remedies, and at last the needles appeared externally in the epigastric region, through a small hole which it made in the stomach and teguments. The patient was freed from her pain as soon as the extraneous body was extracted, and her health was soon restored.

In the medical acts of *Berlin*† we find the history of a little girl of six or seven years of age, who had a hard and pretty large tumor below the epigastric region. This little girl had for a long time been afflicted with intense pains in that part, and with violent colics, which were ascribed to worms. Anthelminthic medicines were prescribed, but afforded her no relief. At last, a surgeon being called, applied to the tumor maturing cataplasms,

* De abdit. morb. & sanât. causis. cap. 20.

† Dec. 1. vol. 6. pag. 73.

plafms, which brought on a suppuration: he open'd this tumor, and on the third day after the operation, in dressing the wound, he perceived a hard body, which he extracted with his pincers. This body was a pin, all cover'd with verdigrease.

In another case related by *Dorstenius* *, a pin, without producing any considerable pain, made a passage for itself below the cartilago xiphoides. The same effect has been seen produced by a large fish-bone, but not without pain †. This bone caused a very intense pain for a long time, near the epigastric region, pierced the coats of the stomach by little and little, and was at last extracted from the aperture of an abscess form'd near that region.

It is not to be doubted but knives, and other bodies of the like kind, are the most considerable of the extraneous bodies, which are most proper to open a passage for themselves, thro' the texture of the membranes of the stomach, and the parts adjacent. Of this there are many examples. In 1691, near *Halles*, in the dutchy of *Magdeburg*, some peasants wanted to teach one of their comrades the method of taking in his teeth, when sitting on a bank, and reaching backwards, a knife fixed in the earth below the bank, and to recover his former situation, without touching the earth with his hands. The young peasant succeeded ill in the attempt; for, after having extracted the knife, and held it in his mouth, he fell backwards with the bank, and the knife fell into his throat. His comrades, frightened at the accident, attempted in vain to extract it; but the patient, by drinking water, beer and oil, made it descend into the stomach. *Wafonerus* §, who has given this observation, says that the patient at first felt a very intense pain in the left hypochondrium

F f 4

under

* Ephem. Dec. 2. ann. 3. Obs. 59. & *Bonet*. Med. Sept. lib. 7. paralip.

† Ephem. Dec. 2. ann. 7. Obs. 79.

§ Act. Leipsiens. ann. 1692. pag. 502.

under the false ribs. This pain disappear'd and return'd by intervals: about a year and half after, in this part, an inflammatory tumor being form'd, was chang'd into an abscess. A surgeon opening this abscess, extracted the knife, whose point presented itself. Few symptoms superven'd, and the cure of the abscess was soon terminated.

We find many similar facts in practical authors. In the Philos. Transf. of the Royal Society of *London**, there is mention made of a *German* who swallowed a knife, which remain'd seven months in his stomach, and was at last discharged from an abscess form'd in the left hypochondrium.

We may here mention three facts which happen'd at a village call'd *Vallé de Monmorency*, near *Paris*†. A husbandman of sixty-five years of age, of a strong and robust constitution, and who had entirely lost his reason, without being perceived by any person, swallow'd the blade of one of those instruments which butchers wear by their sides for sharpening their knives. He discovered no marks of pain after having swallow'd it. At the end of five or six months, a considerable abscess appeared in his right hypochondrium, where the machine was lodg'd, with a great deal of matter. It was dexterously extracted, and the wound healed in eight days.

This accident was followed by another as troublesome. The same man accidentally found the foot of an iron pot, which he swallow'd. He made no complaints, notwithstanding the painful impressions which a hard body of an irregular figure must have made on his stomach. The same thing happened as before; six months after, there was an abscess formed in the left hypochondrium, thro' which the extraneous body was discharged, and the abscess was soon heal'd.

This

* Ann. 1696. No. 219. artic. 2. † Zodiac. Med. Gall. Blegny. May 1679. Obs. 2. & Verduc Pathol. Chir. Tom. 2. pag. 30.

This was not the last misfortune of this poor husbandman; for, soon after his cure, he swallowed a pocket knife, with its sheath. At the end of some months, this knife was discharg'd from an abscess form'd a little above, and at the side of the vertebræ of the loins; the sheath was rotten, and the knife, whose point presented itself first, pierced the abscess, while the man was stooping to manure the ground.

Knives, when swallowed, do not always pierce the stomach, since some of them pass through the intestinal canal, and are sometimes, as we have elsewhere observed, discharged by stool, without producing any considerable disorders.

Extraneous bodies which have pierc'd the intestines, and been discharged from external abscesses.

But often they pierce the intestines, and are discharged from abscesses which they cause in several parts of the abdomen. *Ambrose Paré* § informs us that a gang of robbers forced a shepherd to swallow a knife half a foot long, with an horn handle. This knife continued six months in the shepherd's body, and produced some terrible symptoms; and, among others, intense pains in different parts of the abdomen. The patient afterwards fell into a consumption, but at last an abscess was form'd in his groin. *Guillemet*, surgeon of *Sommiers*, near *Montpellier*, opened the abscess, and extracted the knife, which presented to the wound, after which the patient was very soon cured.

*Fabricius Hildanus** also relates, from *Wierus*, a case pretty similar to the former. A shepherd forced a rusty knife into the throat of one of his comrades, and constrained him to swallow it. This knife was not discharged till two years after, from an abscess form'd in the groin.

To this kind of extraneous bodies we may refer the

§ Lib. 25. Cap. 16. & *Schenkius*, Obs. Med. Lib. 3. Obs. 7.
* Cent. 1. Obs. 54. & Cent. 5. Ob. 75.

the three pieces of sharp iron, of an irregular figure, which, as *Bartholin*† informs us, were swallowed by a mad-man, and which were, ten months after, discharged from an abscess form'd in the posterior part of the lower belly.

It is not surprising, after the observations already related, concerning needles and pins, which make passages thro' the parts of the body, that these extraneous bodies should sometimes pierce the intestines, and convey themselves to the external parts of the abdomen. However, in this assemblage of observations, we find a variety which deserves our attention, since we perceive that these needles and pins sometimes pass thro' the texture of the parts, and are discharged by the urinary passages, without producing any symptoms; that they are sometimes encrusted, and form stones in the bladder; that, at other times, they are fixed in some of the viscera, and produce terrible effects; that often they run successively thro' different parts of the body, without producing any remarkable disorder; that sometimes they insensibly make an external vent, without producing any other disorder in the parts thro' which they pass, than the small aperture thro' which they are discharged; and that, at other times, they occasion considerable tumors and abscesses externally. We have already seen some examples of this last case, when speaking of the needles and pins which pierce the oesophagus or stomach, and which are convey'd outwards. It is not to be doubted but they may also sometimes produce the same effect, when they pierce the intestines, and arrive at the external parts of the abdomen.

M. de la Haye, in the Hospital at *Rockfort*, saw a patient,

† Cent. 6. Histor. 99.

patient, in whom, after a defluxion of the breast, there appeared an abscess as large as an hen's egg in the right groin. *M. de la Haye* open'd the tumor, and in examining with his finger, in the center of the abscess, whether there were no bridles to cut, he found a pretty large pin an inch long, which he forthwith extracted. The patient remembred to have swallowed this pin some time before he went into the hospital. No symptom superven'd, and the ulcer was very soon cured.

XL. Observation, by *M. de la Haye*, on a large pin extracted from an abscess in the groin.

We find a similar fact in *Ruyfch* ||; but the symptoms produced by the extraneous body were much more considerable. A young girl, amidst her play, swallow'd a pin, and some time after there appeared in her groin a hard inflammatory tumor, accompanied with a fever, and intense pain. The surgeon called to the patient, order'd suppurative topics to be applied to the tumor, which, when the matter was form'd, he open'd with a lancet, and this operation procured vent to a pin all cover'd with rust, and to a large quantity of pus mixed with a stercoral matter. This circumstance made the death of the patient suspected; but the adhesion which the intestine had no doubt contracted with the peritoneum, hinder'd, says the author, the excrements from being discharg'd into the abdomen. Their passage thro' the wound was closed up, and the cure of the abscess was happily terminated.

It is not difficult to conceive that an awl without an handle, should form a passage thro' the parts; but it is more hard to comprehend how an inflexible body, so long and sharp, should in the stomach take the direction necessary to insinuate itself into the lower orifice of that organ, and slip into the intestines. *Diemerbroeck* §, however, relates an example

|| *Obs. Chirurg. Obs. 55.*

§ *Mercury de France, mois de Juin & Juillet 1727.*

ple of it, with some circumstances which facilitate its comprehension. The history of this fact is also instructive for practice.

A child, playing with the blade of an awl, swallow'd it without being perceived by any person. He complain'd of pains in his abdomen, had no fever, eat his aliments as before, and went to stool freely. The abdomen however was a little elevated, and the patient became more and more extenuated. He rubb'd his nose continually, slept little, and had frightful dreams, which wak'd him frequently. *Diemerbroeck*, being consulted, thought at first that these symptoms were occasion'd by worms, so that he in vain order'd the medicines most proper for removing that cause. The pains of the abdomen were augmented to such a degree, that it was thought the cries of the child could not fail to produce a rupture. Upon handling his abdomen carefully, there was felt under the teguments, between the navel and the pubes, a little to the left side, something pointed and solid, which almost pierced the skin. This was thought to be some small bone which the child had swallowed; but, upon making an aperture to discover the extraneous body, the surgeon was not a little surpris'd to find a large blade of a shoe-maker's awl, with a piece of pitch and thread fix'd to the part which enters the handle. The body was forthwith extracted, and the child enjoy'd good health afterwards.

Diemerbroeck, after making a great many reflections, looks on this phenomenon as an effect produced by the operation of the devil; for, continues he, how could this instrument have reach'd the skin, without piercing the intestines, the peritoneum, and the abdominal muscles, if the child had swallowed it in a natural manner? This is not the circumstance which ought to have most perplexed this practitioner, especially if he had been only acquainted with

with a part of the observations we have related; for he would have been convinced that this awl might, like a great many other bodies we have mentioned, make a passage for itself thro' these parts. The greatest difficulty is, in my opinion, to comprehend how a body of that form could, as we have before observed, pass from the stomach into the intestines, without one of its ends engaging in the edges of the pylorus. However, I think it is natural to suppose that the thread must have passed first thro' that orifice with the aliments, serv'd as a direction to the awl, and convey'd it into the intestines.

It is sufficiently evident that bones, with points or angles, which pass thro' the intestines, may, in like manner, make passages for themselves thro' the parts, and produce abscesses; so that the examples we are about to relate, ought not only to confirm this fact, but also to excite the attention of surgeons, with respect to this piece of practice, when, in the exercise of their art, any case occurs, in which there is reason to suspect a similar cause.

Garmannus † informs us that a lady, in eating the wing of a fowl, swallowed a triangular piece of bone; and tho' this body had easily slipp'd into the stomach with the other aliments, yet she was afraid lest it should afterwards produce some terrible symptom. The patient's stools were carefully examined, but the piece of bone could not be found among them. At last the lady, not finding herself incommoded, took courage, and thought no more of the bone. Three months after, a small tumor appeared below the umbilical region: tho' this tumor resembled a boile, yet it did not excite intense pain, but only produced a troublesome itching, and terminated by suppuration. Being open'd, the piece of bone was found in it, and the abscess was soon cured.

The

† *Ephemerid.* Dec. 2. ann. 10. Obs. 185.

The same effect happen'd from the jaw-bone of a fish; the abscess was form'd near the posterior and inferior part of the loins, and was succeeded by a very considerable ulcer, in which the bone was found. This extraneous body, which had been swallowed some time before it produced the abscess, excited intense pains in the whole intestinal canal ||.

Borrickius § at great length relates the history of a man, from whom he extracted at different times, and from different abscesses, form'd on the posterior part of the loins, near the os sacrum, several vertebræ of fishes, which the patient had swallowed long before.

Nature has generally far advanced the work, when, in these cases, Art is capable of lending her any assistance. However, the aid of the surgeon is almost always necessary to terminate the cure, and these abscesses have often fatal consequences, which he could prevent, if it was possible at first to discover the cause of the disorder, and if the patient, at the beginning, would submit to the necessary operations.

A man swallowed a fish-bone, which descended into his stomach, without causing a great deal of pain: but some time after he felt violent lancinating pains about the navel, especially on the right side. These continued for more than a month, and in the same part a tumor was form'd, which disappeared by the application of some cataplasms. A month after there appeared in the right groin an abscess, which broke of its own accord. The surgeon call'd wanted to dilate the aperture, which was not sufficient for the discharge of the matter; but the patient, being unwilling to submit to the operation, the surgeon only dressed the

XLI. Observati-
on, by M. Garen-
geot, on a fish-
bone extracted
from an abscess in
the right groin.

|| *Meeckren*, Obs. Med. Chirurg. cap. 36.

§ *Bonet*. Med. Sept. Lib. 5. de trunc. affect. Sect. 2. Obs. 15.

the ulcer with the sponge prepared for the dilatation of its orifice. On the fourth day of these dressings, on removing the piece of sponge, he saw an hard body, which presented itself to the aperture, and which, being extracted with pincers, was found to be a fish-bone about an inch long. The surgeon, in the subsequent dressings, perceived that the pus, which was copiously furnished by the abscess, came from the navel. He insisted again upon making a dilatation; but the patient declining it, he abandon'd him, and the ulcer remained fistulous.

About four years after, the patient called another surgeon, who examined him, and enquired into what had happen'd before; but the want of courage in his patient, and the state of the disorder, induced him to call M. *Garengeot* into consultation. This surgeon introduced into the fistula, which was situated above the superior and anterior right spine of the os ileum, a probe, which he easily convey'd to the root of the penis, and discover'd, both by the probe and his fingers, that the gland of the right groin was inflated and scirrhus. M. *Garengeot* informed the patient that the only method of curing him radically, was to open the fistula in all its length, that is to say, from its orifice to the root of the penis; and that it was necessary to lay hold of the gland with a hook, dissect it, and remove it entirely.

Some days after, the surgeon performed the operation, in presence of M. *Garengeot*, and found the gland as large as a filberd, and of a scirrhus hardness. The ulcer was cicatrised about a month after. It is to be presumed, says M. *Garengeot*, that the fish-bone had induced an inflammation in some part of the ileum; that this inflammation had occasioned the adherence of that intestine with the peritoneum in the umbilical region; that by means of the
fu-

supervening suppuration, the fish-bone had passed from the intestine into the fat, and that it had afterwards descended insensibly into the right groin, following the road of the matter, which procured a vent for itself in that part.

If it had been suspected that the tumor which at first appeared at the navel, was caused by an extraneous body, it would have been judg'd proper to open it, in order to extract that body; and by such an operation we might have prevented the second abscess, which degenerated into a fistula, and was only cured a long time after, by an operation more considerable than that first proposed by the surgeon.

*Riedlinus** relates a case where art would have prevented still more terrible symptoms, if the patient had called for assistance sooner, because the tumor would have certainly determin'd the surgeon in due time what method to take. A peasant was seiz'd with violent colics and gripes, which were succeeded by an obstinate costiveness. He in vain had recourse to clysters, and even to reiterated purgatives, since these did not in the least diminish his pain. After the disorder had continued three weeks, a surgeon was called. The patient was afflicted with cold sweats, and almost continual weaknesses, neither had he had any stool from the beginning of the distemper. The surgeon, finding a considerable tumor on the lumbar region, suspected that there was a collection of stercoral matter in it, and that there was even a gangrene in the intestines; so that he looked upon the disease as desperate. This surgeon, however, represented to the persons present, that there was still one expedient left, which was to open the tumor. The patient consented, and the operation was performed, upon which a large quantity of stercoral matter was discharged from the incision. The surgeon, in cleaning

* *Lineæ Med. ann. 4. August. art. 9.*

sing the wound, perceived a white body, which he extracted with his pincers. This body was a large fish-bone, an inch long, which the patient remembered to have swallowed the night before his disorder began. The fæces pass'd through the wound for two months, but this discharge gradually ceased, and the patient was perfectly cured.

Sharp and cutting bodies, such as those now mentioned, are not the only substances, which, by means of the suppurations they occasion, make passages for themselves to the external parts; for the stones of fruits have often made roads of the same kind for themselves. It is true, as before remarked, that they are sometimes collected in the cellules of the intestines, and prove mortal, while, at other times, they only produce violent colics, obstinate constipations, and other symptoms, which are, however, terminated by their evacuation. It has also often happened that these bodies have occasioned an inflammation, which has degenerated into an external abscess, from which such bodies have been discharged with the matter of suppuration. *Eggerdes** relates an observation, in which we see that nature delivered herself from these bodies in this last manner, without any assistance from art.

A peasant voraciously eat a large quantity of cherries with their stones. The man became so obstinately costive, that no methods used could procure a solubility of body. Art being incapable of affording him any relief, these stones open'd a passage for themselves into the right groin, through the membranes of the intestines, and the teguments of the abdomen. They were discharged with impetuosity, and the aperture which gave vent to them closed naturally, without being dressed by any surgeon.

We find a nearly similar fact in the Philosophical

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* Miscellan. Curios. Dec. 3. Ann. 4. Obs. 10.

Transactions of the Royal Society †. A woman swallowed a pretty large quantity of prune stones, which, by their bulk, as well as by their acute form, produced very considerable symptoms. The patient was afflicted with violent colics, which were succeeded by a long constipation; at last these stones produced a very large tumor on the umbilical region. This tumor came to suppuration, and opening of its own accord, the stones were discharged.

In the third part of this Memoir, we have seen that extraneous bodies sometimes pass through the whole intestines, and stop at the sphincter of the anus; and that when we first perceive the presence of these bodies, we can extract them before they produce any considerable disorder in the part where they are retained. But it often happens that they are not discover'd till they have produced inflammations, succeeded by abscesses, or a gangrene, which require a great deal of care and skill in the surgeon.

Extraneous bodies which stop at the fundament, and occasion abscesses.

We read in the observations of M. *le Dran**, that M. *Destendau*, a surgeon at the *Hague*, was called to a man of fifty years of age, who for eight or nine months had laboured under a fistula in the anus. This patient was exhausted, and became almost hectic, as well by the violence of his pains, as by a slow continued fever. The surgeon, upon probing the fistula, found that its external entry was two inches from the anus in the right buttock, and that its other extremity pierced the sphincter of the rectum as high as the fore-finger could reach. He prepared the patient for the operation, which some days after he perform'd in the usual manner. When he convey'd his finger into the wound, in order to know whether he had sufficiently disentangled and
sca-

† *Greenbill*, ann. 1700. No. 265. articul. 1.

* *Tom. 2. Observ. 86.*

scarified the sides of the fistula, he felt, at the bottom of the wound, a hard and pointed body engaged near the neck of the bladder. He made an incision on this body, and extracted it with his pincers. It was found to be a piece of bone, pointed at both ends, two finger-breadths long, and a little more broad and thick, than a large blade of a pen-knife. The patient had swallowed this bone without being sensible of it, but he remembered that some time before the fistula appeared, he felt a violent pain in his fundament when he stoop'd. It was undoubtedly then, continues the observator, that the bone occasioned an inflammation, succeeded by an abscess, which degenerated into a fistula.

M. de la Peyronie gives us an observation nearly similar, tho' the symptoms were more considerable. A man who eat some broth swallowed a piece of bone, which lay concealed among the cabbage. This body produced a violent pain in its passage from the œsophagus into the stomach, in whose cavity it remain'd for ten days, and produced violent gripes and pains. It excited the same symptoms during the time it passed through the whole circumvolutions of the intestines; at last it arrived at the rectum. Intense pains appeared at first in this part, and were succeeded by a considerable irritation. An inflammation ensued, and the obstruction became so great that a gangrenous congestion was gradually form'd, and possessed all the circumference of the fundament, and a part of the buttocks. The patient reduced to this calamitous state, apply'd to *M. de la Peyronie*, who thought that the most pressing indication was to open the abscess. He had no sooner reach'd the center of the matter, than he felt the extraneous body, which, when extracted, was found to be a piece of bone of beef pointed at its extre-

XLII. Observati-
on, by *M. de la
Peyronie*, on a
piece of bone ex-
tracted from a
gangrenous abscess
of the fundament.

mities, seventeen lines long, and six or seven lines broad. *M. de la Peyronie* removed the gangrenous flesh, and the ulcer being discharged, was soon filled, and the patient perfectly cured.

XLIII and XLIV
Observation, by
M. Petit, on a
bone of a fowl ex-
tracted from a
gangrenous abscess
in the fundament,
and on a needle
extracted by inci-
sion from the
same part.

These cases often occur in practice. *M. Petit* informs us, that he has several times extracted foreign bodies from the circumference of the anus. He mentions, among other things, a small bone of a fowl, which he extracted from a gangrenous abscess of the fundament; and a needle swallowed by a lady, which for six months produced very intense pains in the anus every time she went to stool. *M. Petit* visited the patient, and found the extraneous body under the skin, about an inch from the anus. Two days after, he made an incision in order to extract it.

*Stalpari Vanderwiel** informs us, that a man swallowed the jaw-bone of a fish, which stuck in his œsophagus for some time, and only descended into the stomach, after having produced intense pains. Seven months after, an abscess appearing on the margin of the anus, the surgeon who opened it found the extraneous body in it.

In the *German Ephemerides*† we read, that a person swallowed a pretty large piece of wood, which was sharp at one of its extremities. This body descended thro' the intestines with ease, and almost without producing any pain, till it came to the rectum, where it stopt, penetrated insensibly thro' the membranes into the adjacent fat, and formed an abscess near the coccyx. This piece of wood was extracted from an aperture made to give vent to the matter.

Sometimes extraneous bodies which stop at the fun-

* Cent. 2. part. 1. Obs. 21.

† Dec. 2. ann. 2. Obs. 39.

fundament, pierce not only the rectum, but also go very far into the adjacent fat and flesh. *M. Feburier* was called to a lady who complained of violent pains in her fundament, which she thought occasioned by hemorrhoids, to which she had been long subject. This lady would not be inspected. *M. Feburier* bled her, ordered a suitable regimen, and prescribed the remedies proper in similar cases. Next day the patient was reliev'd, though a considerably acute pain remain'd in her buttock, where there was a considerable hardness, which determined her to consent to have the disorder examined. *M. Feburier* found a very hard and inflamed tumor in the left buttock, about three finger-breadths from the margin of the anus. To this tumor he applied emollient and maturing cataplasms, and the abscess breaking of its own accord in the night, discharg'd a great deal of pus, notwithstanding which a great hardness and inflammation continued. *M. Feburier* introduced a grooved probe into the small aperture, in order to discover the center of the abscess. He judg'd it proper forthwith to dilate the sinus; after the first stroke of the bistory, he convey'd the fore-finger of his left hand into the wound, where he found a hard body, which he extracted. This was a piece of the bone of a pullet's thigh, which the lady remember'd to have swallow'd some days before. This bone, which was about an inch and an half long, had one of its extremities very sharp. *M. Feburier* says, that the rectum was not laid bare, and that the passage which the bone had made through the intestine was closed up, for which reason he did not carry his operation farther. The patient was perfectly cured on the thirty-fifth day.

XLV. Observati-
on, by *M. Febu-
rier*, on the bone
of a fowl extract-
ed from an abscess
of the anus.

XLVI. Observation, by M. *Dubois*, on a splinter of a stone pot, extracted from a gangrenous abscess in the buttock.

The following fact is of no less importance than that last related; it is communicated to us by M. *Dubois*. A man of 69 years of age was seiz'd with an erysipelatous inflammation, which possessed the two buttocks, and extended to the os sacrum, and the scrotum. M. *Dubois* order'd several venesections one after another. Next day he found the inflammation greatly diminished; but he perceived a gangrenous spot, as large as a shilling, on the right hip, about half a foot from the anus. M. *Dubois* convey'd another groov'd probe into the middle of this eschar. The probe enter'd easily four finger-breadths into the fat of this part, which was sphacelated. At the extremity of the probe he felt a resistance, which made him suspect that there was an extraneous body lodg'd in the part. M. *Dubois* made an aperture sufficient to lay bare this body. He took long spring pincers, and introduced them along the groove of the probe to the extraneous body, which he laid hold of, and forthwith extracted. He afterwards convey'd the probe from the side of the rectum into that intestine which was pierc'd: the probe penetrated four finger-breadths above the sphincter of the anus. The body, which had made a passage here, had enter'd the texture of the fat, and convey'd itself more than half a foot from the orifice of the fundament. This body was at least six lines in circumference, and about two lines broad; it was a splinter of a stone pot, which had many sharp and cutting angles. The patient remember'd to have swallow'd it long before.

The mortification extended equally to both hips. M. *Dubois*, in different days, removed the gangrenous flesh. He first split the rectum in a considerable extent, in which operation the patient did not feel the smallest pain; he afterwards cut that intestine,

testine, in all its diameter, as high as four finger-breadths, whither the gangrene had already reached. These operations were long and laborious, on account of the large quantity of sphacelated flesh, which it was necessary to remove.

The patient had very considerable symptoms, and was seiz'd with a violent and continual fever, whose redoublements were every evening declared by long shiverings, succeeded by a delirium; he was also afflicted with an excessive purging. All these symptoms persisted in the same violence till the twenty-eighth day, when the gangrenous eschars began to separate, a laudable and copious suppuration was established, and all the symptoms diminished insensibly.

M. *Dubois* took care to put into the orifice of the rectum a large and long tent, well secured by graduated compresses, in order to keep the intestine dilated, for fear the loss of substance, which this part had sustained in all its extent, should occasion a contraction of it, which might afterwards hinder the evacuation of the excrements. At the end of four months, the patient was perfectly cured of this terrible disorder.

Remainder of the Fourth Case.

Extraneous Bodies which are stopp'd in the first Organs of Digestion, and which must be extracted by Incision.

If, in the subject we treat, there are many cases where nature is the principal agent, there are a great many others in which she is entirely impotent, and in which the patients can only find assistance from art. Of these, the three first parts of this Memoir include a number of examples. But we now proceed to relate more of them, which shew that sur-

gery, after having tried the ordinary means of relief, presents others, which, tho' extreme, and perhaps not very certain, ought not to be rejected in desperate cases.

Sometimes extraneous bodies are so engaged in the pharynx or œsophagus, that we can neither extract nor depress them by any of the operations or remedies already proposed. Sometimes these bodies produce very pressing symptoms, and if the patient is then deprived of assistance, his death is certain. This case principally happens, when the extraneous body is of a considerable bulk, and compresses the trachea arteria to such a degree that the patient is in imminent danger of suffocation.

Habicot, surgeon in the university of *Paris*, in this extremity proposes to perform the operation of bronchotomy. "We must*, says he, perform this operation on those who have swallowed any thing capable of obstructing the larynx by compression, as on him who, on a festival day, swallowed a small bone of a leg of mutton, which remaining in his pharynx, suffocated him in the presence of the physicians and surgeons, who did not relieve him by this remedy." This operation may also be of another use, which *Habicot* does not mention, and which is, to open a passage for the extraction of bodies that slip into the trachea arteria, and are engaged in it.

The safety of bronchotomy has, both by the ancients and moderns, been principally established on the facility with which even some of the most complicated wounds of the trachea arteria have been cured. Of this, most observators have left us remarkable and well known examples†. However,
we

* *Question chirurgicale sur la bronchotomie*, cap. 16.

† *Paré*, lib. 10. cap. 30 & 31. *Tulpius*, *Obs. Med.* lib. 1. cap. 50. *Placcentinus*, lib. 2. *Chir.* cap. 7. *Bartholin*, *Cent.* 5. *Hist.* 89. *Welschius*, *Sylog. Obs. & Cur. Med. Obs.* 63. *Rumlerus*, *Obs.* 80. *Marchettis*, *Anat.* cap. 11. *Timæus*, *Respons. Med.* 14. *Riverius*, *Obs.* 5. ab *Oxia Aimar* commun. *Donatus*,

we shall only relate those which have been communicated to the Academy, and which, with the other authorities, may contribute to prove the safety of this operation.

A very robust man, of forty-five years of age, was seiz'd with an ardent fever, accompanied with a delirium, for which he was several times blooded in the arms and feet. He got out of bed, without being observed by any body, and taking a razor, made a wound in the anterior part of his throat, which extended transversely from the external jugular on the right side, to the jugular on the opposite side; the larynx was open'd in two parts, and nearly in the same direction. The patient had given himself two strokes of the razor, the one in the superior part of the larynx, and the other in the inferior part, exactly between the thyroide and cricoide cartilages; so that a portion of the thyroide cartilage being cut above and below, was almost totally separated from the rest of that cartilage. It was thrust upon the wound of the teguments by the air which was discharged from the larynx, with considerable impetuosity and whistling. This portion of cartilage being loose, followed the motions which the air impressed upon it. The hemorrhage was considerable, and the patient had entirely lost the use of his speech.

XLVII. Observation, by M. *Pascal*, on a wound of the larynx.

M. *Pascal* being forthwith called, at first attempted the re-union of the parts: He restored the divided and almost separated thyroide cartilage to its place; he brought the lips of the wound into contact, and secured them by some stitches of the interrupted suture, and by a bandage which kept his chin fix'd to his breast, in order to favour, in every re-

natus, lib. 3. de med. hist. mirab. cap. 6. *Albucasis*, lib. 2. cap. 43. *Dionis*, Oper. Chirurg. demonst. 5. *Habicot*, Question Chir. sur la bronchot. cap. 12. *Garengeot*, oper. de chir. Tom. 2. cap. 8. Obs. 12. *Ephem.* Dec. 2. ann. 8. *Seannert*, lib. 1. pract. part. 1. cap. 24. quæst. 5.

respect the re-union of the divided parts. The patient was blooded four times during the night, and from his mouth discharged a great many clots of blood, which were now and then brought away with false tents of linen. He had no nourishment for three days, and gradually recover'd his speech. *M. Pascal* did not remove his dressing till the third day, in presence of Mess. *Belissant* and *Froment*, who were called into consultation. He found a great hardness, and an emphysematous inflation in all the neck, which greatly obstructed respiration. The wound of the teguments had furnished a sufficiently copious suppuration. These symptoms determin'd him forthwith to cut the stitches of the future, and dress the wound simply, with a digestive, render'd more active by some of the balsam of Fioraventi. On that day there happen'd a small hemorrhage, furnished by a ramification of the jugular, which was soon stopp'd by means of a ligature. *M. Pascal* continued the same dressings twice a day, by which means no symptom afterwards superven'd. But the wound was not entirely re-united till after three months, because the patient, who still continued without his reason, made violent motions and contorsions, and even frequently tore away the dressing.

M. Alary has communicated to us a nearly similar case, the cure of which was very expeditious, tho' there was a great loss of substance: The wound was four finger-breadths in length, and wide enough to admit ones finger. It was accompanied with a very considerable hemorrhage; a part of the blood fell into the trachea arteria, and excited a continual cough, which put the patient in danger of being suffocated. The loss of speech, and the air which was discharged from the wound with a whistling noise, made *M. Alary* suspect that the trachea

XLVIII. Observation, by *M. Alary*, on the same subject.

chea arteria was open'd; but, to render himself more certain of this, he wash'd the wound with tepid wine, and distinctly perceived a division between the thyroide and cricoide cartilages. Upon examining the wound with more attention, he found that it was not the effect of one, but of several strokes, the first of which had run cross-ways above the larynx. This first stroke only affected the teguments; but the two others had been given obliquely on the thyroide and cricoide cartilages, and cross'd each other. M. *Alary* extracted from the wound a portion of the wing of the thyroide cartilage, which was entirely separated from the rest. There was another portion of it which still adhered a little to its body. The skin was as it were mangled and torn very irregularly, by the bluntness of the knife which had made the wound.

M. *Alary* having re-apply'd the almost separated portion of the thyroide, united the teguments, and made four stitches of the interrupted future, in which he only comprehended the skin and the muscles. In re-uniting all these parts, he had no other design than to prevent the entrance of the external air into the trachea arteria; for he did not imagine that the wound, whose flesh was very much dilacerated and contus'd, could re-unite without a suppuration. Besides, he was not sure that the portion of the thyroide which he had re-apply'd, would adhere. The whole dressing was secured by a bandage, which keeping the head bended forwards, tended to keep the divided parts in contact. When the patient was dressed, he began to speak pretty distinctly, but his respiration was very difficult, and he had a frequent cough, which made him gradually throw up the blood which had slipp'd into the trachea arteria. Several copious venesections made after each other allay'd this symptom, and put the patient in a state of greater tranquillity.

The

The wound, as M. *Alary* had foreseen, furnish'd a copious suppuration from the intervals of the stitches of the future, and especially towards that part of the larynx, whence the piece of the thyroide cartilage, which was almost entirely cut off, should have been detach'd. There was, at the inferior lip of the wound, a dilaceration, which form'd a sack, or bag, in which the purulent matter was lodg'd: this cavity extended to the superior part of the sternum. M. *Alary* made injections to carry off the matter lodg'd in it, and procured the conglutination of the sides of the sack, by the application of several expulsive compresses. On the eighth day he cut the stitches of the future; the wound was well re-united, except at the part of the portion of the cartilage which had been replaced. This portion was separated and discharged on the sixteenth day; the suppuration diminished, and the wound was entirely closed up at the end of three weeks, by a cicatrix, which was firm, and adhered to the cartilages of the larynx.

A soldier in the royal hospital of invalids, with a blunt knife, made a wound in his throat, much more considerable than those already mention'd. The surgeon in waiting found him in a syncope. His first view was to stop the blood, which flow'd copiously. As soon as the hemorrhage was stopp'd, and the dressing applied, the patient's senses return'd, but his pulse remained very weak and small during the whole night. In the morning M. *Bouquet* removed the dressing in presence of M. *Perroun*. He found in the larynx a large wound, situated between the thyroide and cricoide cartilages. There was another small wound, which penetrated the inferior part of the trachea arteria. The air was discharged from these two wounds with a noise and whistling, which were heard at a considerable distance.

XLIX. Observation, by M. *Bouquet*, on the same subject.

stance. Upon the thyroide he also observed a pretty deep incision, made by another stroke of the knife. The skin and muscles were all lacerated about the circumference of the wound: there was particularly a dilaceration which extended downwards, as far as the sternum, and which seemed to have been made with the fingers. The sterno-mastoide muscle of the right side was cut to such a degree, that the carotid artery of the same side was almost laid bare.

The excessive weakness of the patient hinder'd M. *Bouquet* from attempting the future at that time; so that he dressed the wound simply. The same day the patient resumed a little strength; but in the evening a fever came on, and his throat was considerably inflated. The patient was thrown into violent agitations, which tormented him so cruelly that it was impossible to keep him in a proper situation. He had five venesections made, which, with the assistance of cataplasms, dissipated the inflation of the throat. The fever was alleviated at the end of four days, and the patient became more easy. M. *Bouquet* laid hold of the opportunity of this calm interval, to make a single stitch of the future, which he judg'd necessary not to unite the lips of the wound, but simply to retain the cricoide cartilage in its place. He passed a crooked needle, with a double thread wax'd, under the anterior part of the cricoide cartilage, in order to lay hold of it, and suspend it to the middle of the superior lip of the wound of the teguments: By means of this future, the cricoide cartilage, which was so far distant from the thyroide, as to leave an aperture an inch wide in the larynx, was raised to the thyroide, and the two divided extremities of the membrane which unites the cricoide and thyroide, were put in a condition of being re-united. M. *Bouquet* seconded this future,

future, by the application of a bandage, which secured the divided parts.

The future lasted for six days, and had nearly the success expected from it, notwithstanding the continual agitations in which the patient was, and the improper regimen he observed. The wound of the larynx was almost entirely re-united on the sixth day, so that there only remained a small transverse aperture, which was closed up on the fifteenth day. The cure of the wound of the trachea arteria was compleated before that of the larynx. There only remained the wound of the teguments, which was cicatris'd on the fortieth day.

If the cure of wounds of the trachea arteria is sufficient to shew the possibility of bronchotomy, the success of this operation, on a great many different occasions †, ought to authorise us to propose and perform it in a case, where it is the only expedient left to preserve the life of the patient.

M. *Virgili* has communicated to us an observation

L. Observation,
by M. *Virgili*, on
bronchotomy per-
form'd with success.

on a quinsy, for which he was obliged to have recourse to bronchotomy, which, notwithstanding the terrible symptoms, had a happy success. It must be own'd that a surgeon of M. *Virgili*'s skill and boldness on this occasion, was necessary to succeed, and shew whence, in similar cases, the success of the operation may sometimes depend. A *Spanish* soldier, of the regiment of *Cantabria*, and twenty-three years of age, was seized with an inflammation of the larynx and pharynx, which made such a progress that, on the second day, the patient was in extreme danger. His eyes were staring, and his countenance livid: He could only cry with his throat,

† *Horstius*, Epist. 10. Obs. anat. *Rhodius*, diss. de Acia, cap. 10. *Bartholin*, Cent. 1. Epist. 81. *Blasius*, comm. in syntagm. anat. *Veslingius*, cap. 11. *Fyenus*, tract. 3. de præcip. artis chir. controvers. cap. 3. *Fontanus*, Observ. rarior. analect. cap. 3. quæst. 3. *Casseri*, tract. de vocis auditusque organis, p. 119. *Moreau*, Epist. de Laryng. *Habicot*, quæst. chirurg. sur la bronchot. cap. 11. & 12.

throat, like a man that was suffocating, and was ready to tear his throat open with his hands. He was blooded at the same time in the arm and foot. *M. Virgili* found the symptoms so pressing, that he thought there was no other method left of preserving the patient's life, than by forthwith performing the operation of bronchotomy.

The inflation of the neck was too considerable for making, with certainty, a simple puncture in the trachea arteria with a lancet. This circumstance determined *M. Virgili* to make a longitudinal incision in the teguments with the bistory; he afterwards separated the sterno-hyoide muscles, and transversely open'd the trachea arteria between two ringlets: but this aperture was no sooner made, than the blood, which was discharged from the small vessels open'd, and which fell into the trachea arteria, excited a convulsive cough so violent, that the canula introduced into the wound could not be retained in a proper situation, tho' it was several times put in its due place.

The patient, however, respired little, or none at all; for all the muscles of the part were so affected with convulsions, that the aperture of the trachea arteria was only parallel to the external incision, in certain motions. Besides, the blood, which continued to flow into the trachea arteria, greatly augmented the danger. *M. Virgili*, seeing the extremity to which the patient was reduced, thought that any expedient might be ventured upon, and therefore determined to lay open the trachea arteria longitudinally to the sixth cartilaginous ringlet. He had the satisfaction, immediately after this second operation, to see that the patient breathed more freely; and the pulse, which before was hardly perceptible, began to appear. *M. Virgili* order'd the patient to be laid with his head out of bed, and his face inclining to the ground, in order to hinder the
blood

blood from slipping into the trachea arteria. He put into the wound a plate of lead, pierc'd with several holes, and furnished with two wings folded back, almost like that which *Belloste* invented for the trepan. He secured this plate with a bandage, which served to maintain the lips of the wound in a proper position. The bandage was broad enough to cover the whole wound; so that the air which the patient respired, passed thro the texture of this bandage, which, by retarding its entry a little, made it lose somewhat of its coldness, before it passed into the trachea arteria and the bronchia.

The hemorrhage, in a very short time, stopp'd of its own accord: The patient had a cordial position to raise his pulse, and restore the circulation of the blood, which the hemorrhage, and the defect of respiration had almost intercepted. The day after the operation, the patient had but a gentle fever, and swallow'd liquids very easily. *M. Virgili*, presuming that the inflammation was considerably diminished, and that the patient might consequently respire without the assistance of the wound, in order to assure himself of this, removed the plate, and brought the lips of the incision into contact, by which means the patient breathed freely by the mouth. *M. Virgili* tried to procure the re-union of the wound, by means of the uniting bandage. But as this bandage did not exactly enough secure the lips of the division, he made three stitches of the interrupted future; he dressed the wound with the Commander's balsam, by which method it was perfectly cured in a few days. The fever and other symptoms ceased by little and little, and the patient only continued to be afflicted with a violent cough, which *M. Virgili* thought owing to the obstruction form'd in the bronchia during the quinsy. The patient's voice remain'd considerably weak.

If an operation so considerable has been perform'd
with

with success in an inflamed part, it must succeed much more surely, when it is not necessary to extend it so far as in the preceding case, and when it is performed on a sound part, whose functions are only interrupted by the presence of an extraneous body. I am, therefore, of opinion, that we ought not to be greatly surpris'd at the success of this operation, when undertaken in these last circumstances.

A boy of fourteen years of age, living at *Noisy*, near *Villepreux**, who had heard some body say that gold, when swallowed, produced no bad effect, wanted to swallow nine pistoles wrapt up in a linen cloth, in order to conceal them from robbers; but this bundle, being too large, could not pass the narrowest part of the pharynx, but was there engaged in such a manner as that it could neither be extract-ed, nor depressed into the stomach. The patient was on the point of being suffocated by the compression which the bundle made on the trachea arteria: his neck and countenance were inflated, and so black that his acquaintance did not know him. *Habicot*, to whom the patient was brought, tried by various means to dislodge this extraneous body, but he could not succeed in his attempt. This surgeon, seeing the patient in imminent danger of suffocation, performed bronchotomy upon him; this operation was no sooner made, than the inflation and livid colour of the neck and face disappear'd. *Habicot* made the parcel descend into the stomach, by means of a leaden probe. Eight or ten days after, the patient, at different times, discharged the nine pistoles by stool, and was perfectly and speedily cured of the wound in the trachea arteria.

Bronchotomy is not only necessary to make the patient respire, as in the case last mentioned, but also to extract such extraneous bodies as get into the

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larynx;

* *Habicot*, *Quæst. chirurg. sur la bronchot.* chap. 11.

larynx; in which case the danger is much more pressing*, than when they have fallen lower into the trachea arteria†.

We have seen, in the second section of this part of the work, that we ought at first to have recourse to expectorating, emetic, and sternutatory remedies, in order to procure the expulsion of these bodies: We have also related several observations, which shew the success of this practice. *Verduc* || thinks that, for this purpose, we may also use our fingers, or small pincers. But, in my opinion, these last methods can only be of service, when the substance has not enter'd entirely into the larynx, and when it has stopp'd directly in the narrowest part of the throat, that is, between the epiglottis and glottis; for otherwise there would be no success in using these instruments.

But, when all these means prove ineffectual, and the danger is extreme, no other expedient remains but the operation of bronchotomy. *Verduc* § shews that, on this occasion, it is proper to make the aperture much larger than in ordinary bronchotomy; that, by this means, we may be able to extract the foreign body with the greater ease.

Willis † seems to have been the first who, in similar cases, thought of performing the operation of bronchotomy. A small bone stopp'd in the trachea arteria of a child, and forthwith produced very intense

* *Blancard*, Anat. pract. Cent. 2. Obs. 40. *Bartholin*, Cent. 1. Hist. 11. *Alex. Bened.* in proœm. lib. 7. de curand. morb. *Schenkius*, Lib. 11. Obs. 1. *Donatus*, Hist. Med. mirab. Lib. 3. Cap. 7. *Camerar.* Norimberg. Med. memor. Cent. 15. part. 19. & seq. *Bened.* Anat. Lib. 3. Cap. 18. *Fulgos*, Lib. 9. Cap. 12. *Plinius*, Lib. 7. Cap. 7. & volat. lib. 13. & anthrop. cap. 3. *Valer. Max.* lib. 9. cap. 12. *Act. Leyps.* ann. 1690 & 1726. *Ephemerid.* Dec. 1. ann. 2. Obs. 153. Dec. 2. ann. 4. Obs. 159. *Bonet.* Med. Sept. lib. 2. de oris affect. sect. 9. cap. 2.

† *Bartholin*, Cent. 2. hist. 27. *Stalp. Vanderziel*, Cent. 1. Obs. 23. *Alex. Bened.* anat. lib. 3. cap. 18. *Tulpius*, lib. 2. cap. 7. *Sennert.* prax. lib. 2. pag. 2. cap. 1. p. m. 142. *Ephem.* Dec. 1. ann. 3. Obs. 3. *Manget.* Biblioth. script. Med. pag. 406. *Bonet.* med. Sept. lib. 2. de oris affect. sect. 9. cap. 2.

|| *Pathol. Chirurg.* Tom. 2. Cap. 25.

§ *Ibid.* Cap. 26.

† *Pharm. rat.* part. 2. sect. 1. cap. 2.

tense pains. The patient respired with great difficulty, had a violent cough, and pointed with his finger to the place where the bone had stuck, which was about the middle of the neck. Various methods were in vain tried to procure the discharge of this body. *Willis*, who perceived that the child was like to be suffocated, proposed bronchotomy; but those called in consultation opposed it, and the child died. *Willis*, after his death, performed the operation in presence of those who had opposed it, and very easily extracted a small, long and triangular bone, from an incision made in the trachea arteria. So many are the observations adduced to prove the safety of this operation, that we must necessarily impute the death of the child to the timidity of the men called into consultation.

Verduc * assures us that this operation was, in his time, successfully performed by a surgeon, who, as he says, was so dexterous as to lay bare the trachea arteria, in order to make a pretty large aperture between the membranes which join the ligaments to each other, and to extract a small bone from this aperture; after which, the wound of the trachea arteria was soon cured. "Without this speedy and bold operation, continues *Verduc*, nothing but death could have been expected. Let this serve as a caution on similar occasions, and let us not be so cowardly and timorous as to let a patient die without assistance; for, in cases of necessity, every thing is to be risk'd."

M. Heister †, in speaking of bronchotomy, among the causes which may also require it, ranks the passage of extraneous bodies into the trachea arteria, when there is a pressing danger of suffocation. This author makes the same remark with *Verduc*, on this operation, when it is performed in order to extract

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* Patholog. Chirurg. Tom. 2. cap. 26.

† Instit. Chirurg. part. 2. sect. 3. cap. 302. art. 2.

any body from the trachea arteria, which is, that the aperture must be larger than in common bronchotomy. He orders an external incision to be made three or four finger-breadths long, and when we have laid bare the trachea arteria, to cut three or four of the cartilaginous ringlets of that canal transversely, in order the more dexterously to extract the foreign body with a small probe, a hook, or even pincers, whether crooked or strait.

A piece of mushroom, which had slipp'd into the trachea arteria, obliged M. *Heister* to perform bronchotomy, by which means he extracted the foreign body. This skilful practitioner also informs us that M. *Rauv* open'd the trachea arteria, in order to extract a bean, which being swallowed had slipp'd into the larynx.

The bronchotomy propos'd and practis'd by *Habicot*, as we have already seen in the case of an extraneous body, which compress'd the trachea arteria in such a manner as almost to suffocate the patient, does not directly and immediately remove the cause of the disorder; since it only tends to prevent suffocation and death, by procuring respiration, which is intercepted by the extraneous body.

Verduc † is still more bold than *Habicot*, in this extremity, where the patient is like to be suffocated by any extraneous body, which, by its bulk, excessively compresses the trachea arteria. If the foreign body, says that author, cannot be remov'd from the œsophagus, by all the methods we have propos'd, and if the patient is in danger of being suffocated, I think we may very safely hazard the operation of pharyngotomy, by making an incision in the œsophagus, in order to draw the extraneous body from it. We must proceed, continues he, in the same manner as in bronchotomy, by first separating

Operation of pharyngotomy to extract foreign bodies.

† Pathol. Chirurg. Tom. 2. cap. 27.

rating the bronchial muscles, in order, with a dexterous hand, to find the œsophagus, in which we are to make a longitudinal incision in the part where the extraneous body is stopp'd. I confess, adds the same author, that this operation is difficult, and that the remedy is extreme and dangerous. But these cases ought to induce us to make extraordinary efforts and attempts, especially when we are authorised by facts which promise a happy success. This operation should, for example, have been the only expedient to which the surgeon should have had recourse, at first, in the pressing cases of which we have given several examples *, and in which we see that the patients have died before the surgeons had time to disengage the œsophagus in any other manner. Such might have also been the case related by M. *le Dran* †, provided it had been known what the state of the disorder was; and that, without augmenting the danger of suffocation, it was impossible to attempt the depression of the piece of flesh, found in the œsophagus after death, into the stomach.

The cure of considerable wounds of the œsophagus, seems sufficiently to assure us of the success of bronchotomy. Observators furnish us with a great many examples of wounds, in which the œsophagus has been open'd, and which have been perfectly cured ‡. To these facts I shall add two remarkable observations on this subject, communicated to the academy.

M. *Garengeot* was called to see a man who, with a razor, had made a large transverse wound, about eight finger-breadths in length, between the thyroide and cricoide cartilages. The superior part of

LI. Observation, by M. *Garengeot*, on a wound of the larynx and œsophagus.

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* Pag. 447 & 449.

† *Ibid.* Obs. 2.

‡ *Dionis*, oper. Chir. comment. par M. *la Faye*, Demonstr. 5. *Paré*, lib. 10. cap. 30 & 31. *Habicot*, quæst. chir. sur la bronchot. cap. 12. *Pycray*, prax. chir. lib. 4. cap. 12. *Munic*, prax. chir. lib. 2. cap. 20. art. 5. *Schenkius*, Obs. Med. lib. 3. *Garengeot*, oper. de chir. Tom. 2. cap. 8. Obs. 13.

the trachea arteria was entirely cut; the œsophagus was divided in more than half its diameter; all the muscles of the anterior part of the neck, and the left external jugular vein were also totally cut. The cutting of all these muscles made the patient's head recline backwards, so that the lips of the wound were very far from each other.

M. *Garengeot* did not think it expedient to make any future of the wound, imagining that a simple uniting bandage would be sufficient to procure its reunion. For this purpose he took a long bandage rolled up into two heads, applying the middle of this bandage to the crown of the head, which was kept inclined forwards. He crossed the two heads of the bandage alternately on the breast, and between the shoulders. The bandage thus applied, and rendered sufficiently tight, kept the patient's head inclined forwards, in such a manner, that he could not alter its position. The subsequent dressings were very simple, and only consisted of a long pledget cover'd with the liniment of *Arcaeus*, and secured with a plaister of the cerat of diapalma. These dressings were renewed every two days, and the bandage was continued during the whole of the treatment. Very few symptoms supervened, and the cure was perfected on the eighteenth day.

M. *Poncenard* has communicated to us an example of the same kind, in which the cure was nearly as quick. Some robbers attack'd a man in a wood, and cut his throat. The trachea arteria was totally divided between the thyroide and cricoide cartilages. The superior part of the œsophagus was almost entirely cut; for the posterior part of this canal, which adheres to the vertebræ of the neck, only remained; the sterno-hyoide, or bronchial muscles; one of the sterno-mastoide muscles; the external jugulars, and some other vessels were

LII. Observation,
by M. *Poncenard*,
on the same sub-
ject.

were also entirely cut, so that the enormous wound, which penetrated almost to the vertebræ, was about ten finger-breadths wide. The patient's head reclin'd so much backwards, that the two extremities of the trachea arteria were five large finger-breadths from each other. The lips of the wound were also very much inflated, and full of froth.

M. *Poncenard* being called, began with ordering some broth for the patient, who was extremely weaken'd by the violent hemorrhage. He convey'd this broth into the stomach, by means of a funnel introduced into the œsophagus through the wound: then, notwithstanding the opposition of several surgeons present on this occasion, he made, in the teguments of the neck, three stitches of the interrupted suture, two on each side of the neck, and one on the thyroide and cricoide cartilages. He cover'd the whole with a large plaister of that which takes its name from *André de la Croix*, and took care to secure the head, inclined very much forward, by means of a proper bandage. M. *Poncenard* says that he only dress'd this wound every five days, and that it was perfectly cured on the twentieth day.

Similar cures ought to determine us, in a pressing case, caused by the presence of an extraneous body stopt in the œsophagus, to have recourse to pharyngotomy, in order to extract this body, when it cannot be dislodged by any other means. *Verduc* the surgeon* says, that practitioners of veracity have assured him, that in similar cases they had performed this operation with great success.

Though extraneous bodies, swallowed, sometimes

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* Abreg. compl. de la Chirurg. de *Guy de Chaul.* chap. sing. artic. de l'Exercise.

Operation of gastrostomy, to extract foreign bodies.

pass pretty easily through the oesophagus into the stomach, yet frequently, whether from their great bulk, or some other particular circumstance, they cannot go through the pylorus in order to enter the intestines. We have before related several examples of the fatal effects which such bodies produce on these occasions, especially when they are hard, sharp, or cutting. This case is one of those, in which surgeons ought boldly to practise the most terrible operations, even though their success should be dubious. We must open a passage in the part where the extraneous body is felt, either by the touch or the fix'd pain it produces. We must even search the stomach for such bodies as are included in it, provided they are likely to prove mortal.

The numerous cures which we daily see, and which we find in observators*, of considerable wounds of the stomach, also authorise us to perform this operation. In a word, if wounds made in various parts of this organ, by pungent, cutting, and contusing instruments, and even by fire-arms, have not proved mortal, but have on the contrary been perfectly cured, we may hope the same happy success from an aperture in it, dexterously made by a sharp instrument. If we compare the desperate state of the patient, with the danger to be dreaded from such an operation, we must easily perceive, that, notwithstanding all the terror it can inspire, it is yet, on such occasions, an expedient which leaves room for some hope. We shall not here enter into

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* *Albucasis*, lib. 2. *Meth. Med.* cap. 503. *Christoph. à Vega*, comm. ad *aph. Matth.* cent. quæst. med. 21. *Matth. Cornax*, epist. respons. ad *D. Ægid. De Hertoge*, *Med. Doct.* *Fallop.* de vuln. cap. 12. *Jul. Alex.* annot. ad lib. 6. cap. 4. therap. *Galen.* *Schenkius* lib. 3. *Obs.* 122. *Diemerbr.* *Anat.* lib. 1. cap. 6. *Bern.* *Suevus* de insp. vuln. *Sennert.* prax. lib. 3. sect. 1. cap. 15. *Bohn.* de renunc. vuln. lethal. *Manget.* *Biblioth. Chirurg.* *Stalp.* *Vand.* *Viel.* Cent. 1. *Obs.* 39. *Jacob. Cetheus*, libr. *Obs.* propr. *Joann. Franc.* *Hildefus*, *Med.* *Camenicenus.* *Sculter.* *Obs.* pag. 100. *Barthol.* Cent. 1. *Hist.* 24. *Wolfus*, *Obs.* *Chir. Med.* *Obs.* 27. *Felix Platerus.* *Le Dran*, *Obs.* *Chir.* Tom. 2. *Obs.* 89. *Ephem.* Dec. 2. ann. 1. *Obs.* 26. & Dec. 1. ann. 10. *Obs.* 131. *Zod.* *Med.* *Call.* *Blegny*, *Octob.* 1680. *Obs.* 2.

a detail of the cures of such wounds of the stomach as are capable of supporting this opinion, and daily occur in authors. These are sufficiently known to be pretty numerous, so that we shall only relate some of those communicated to the academy.

A man who had received a thrust of a sword, came to desire M. *Cogblan* to dress the wound, which was situated in the epigastrium, three finger-breadths below, and to the side of the cartilago

LIII. Observation, by M. *Cogblan*, on a thrust of a sword in the stomach.

xiphoides. There was neither inflammation nor hardness round the wound, whose situation and direction, however, made M. *Cogblan* suspect that the liver was wounded. In order to be sure of this circumstance, he thought of probing the wound, but had not time to put his design in execution, because the patient, being seiz'd with an inclination to vomit, threw up three porringers full of blood, mix'd with some aliments and beer which he had taken a little before he was wounded. This vomiting was succeeded by another, in which the patient discharged a chamber-pot full of pure blood. These two evacuations appeared to alleviate the pain and weight which he felt in the epigastric region.

M. *Cogblan* order'd the patient to be laid in bed, and he was about to bleed him, but was interrupted by a weakness, which supervened, and was succeeded by a vomiting of blood like the former. This vomiting return'd four times in two hours at equal distances, without reckoning the first, in which the blood was mixed with the aliments; and the patient each time evacuated almost the same quantity of blood. These vomitings were not only accompanied with sweats, horripilations, and shiverings, but were also succeeded by a prodigious alteration. The extremities became cold, and the pulse was convulsive and often imperceptible; all these symptoms, which indicated that the stomach was pierc'd,

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induced M. *Cogblan* to form a very bad prognostic. The low state to which the patient was reduced did not permit venesection: The surgeon order'd him to take two drams of alum dissolved in water, every time he vomited; and for ordinary drink, he used a vulnerary infusion. The vomiting of liquid blood, or rather the hemorrhage, stopt on taking the third dose of the solution of alum. The patient, however, continued to take half a dram of this styptic every half hour. He went to stool, and discharged fæces of the same consistence as in a natural state; the weakness and cold sweats continued during the whole night, and he vomited a little blood which had remain'd in the stomach, and was become coagulated.

Next day his pulse became brisker, and M. *Cogblan* blooded him thrice the same day. He only allowed him, for nourishment, about two ounces of broth every three hours. He also continued the use of the alum water, that day and the following. M. *Cogblan* computes the quantity of the alum the patient took, to be two ounces and an half; and that of the blood he lost by vomiting, whose quality and colour denoted it venal, to be twelve pounds. All these symptoms disappeared by little and little, and the patient was recover'd on the seventeenth day. We now proceed to give a detail of another very considerable wound which was inflicted in the same part, but which, however, was not accompanied with so considerable symptoms.

A man received a thrust of a knife, which made a longitudinal incision, to the extent of four finger-breadths, in the middle of the epigastrium, directly on the *linea alba*. This wound began below the cartilago xiphoides, and describing a perpendicular line, terminated near the umbilical region. A portion of the epiploon, as large

LIV. Observation,
by M. *Leffere*, on
a thrust of a knife
in the stomach.

as two eggs, and even already alter'd, was protruded from the wound. A portion of the stomach, as large as half the fist, also came out of it, tho' that organ was open'd in its interior and middle parts, by a wound sufficient to admit the finger with ease. M. *Lessere*, who was called into consultation by the surgeon of the place who had first dressed the patient, perceived some broth he had swallowed to be discharged from the wound. The patient was nevertheless without a fever, and had but very few symptoms. M. *Lessere* says, that he began by making a ligature on the alter'd portion of the epiploon, and that he separated it below this ligature; he afterwards attempted the reduction of the stomach, but on the least compression made on that organ, the patient appear'd ready to be suffocated; for which reason he was oblig'd to leave the cure to nature. He only cover'd the wound with a linen cloth dipt in warm wine, order'd several venesections, and reduc'd the patient to a very strict regimen.

On the fourth day after the reception of the wound, another surgeon was called, who, with an intention to hinder the discharge of the aliments from the wound, wanted to make a suture in the stomach; but the threads tore such portions of that organ as were comprehended in the stitches. The surgeon in ordinary to the patient seeing the small success of the different attempts made to reduce the stomach, and prevent the discharge of the aliments, was content, with M. *Lessere*'s approbation, simply to cover the wound with a pledget dipt in the Commanders balsam, which he applied to the wound of the stomach, and that of the teguments was dressed with honey of roses. Particular care was taken to embrocate all the adjacent parts, with warm wine, and oil of roses. By means of these simple dressings, the teguments were relax'd, the prolaps'd parts

parts re-enter'd into their proper cavity, the aliments ceased by little and little to be discharged from the wound of the stomach, which was insensibly cicatrised, and the patient was perfectly cured two months after.

Among the various examples of such wounds of the stomach as evince the possibility of their cure, we find few so satisfactory and strong as the following. M. *Carterat*, who has favoured us with

LV. Observation,
by M. *Carterat*,
on the same sub-
ject.

the account, says, that a peasant, as he was rising from table, received a thrust of a knife, which made a wound in the superior and middle part of the epigastric region, two inches below the cartilago xyphoides. The knife had cut the linea alba obliquely, and made an aperture in the superior part of the stomach. The aliments the patient took were forthwith discharged from the wound, which in the teguments was so large that it permitted M. *Carterat* to bring the stomach out, and make the glover's stitch in it, in such a manner as to avoid all the inconveniencies attending that species of suture. After having return'd the stomach, he perform'd the operation of gastroraphy on the wound in the teguments, and applied a proper dressing.

M. *Carterat* ordered the patient to lie in bed on his belly, in order to afford a discharge to the fluids which should happen to be extravasated. He prescribed several venesections one after another, and confined the patient's regimen to two ounces of broth four times a day, and to a vulnerary ptisan exhibited in small doses. He also order'd clysters, and emollient fomentations to prevent the tension and inflammation of the parts. Next day M. *Carterat* found the wound of the teguments almost entirely re-united; but what is most surprising is, that during the whole course of the cure, the patient had

had neither a fever, nor any other symptom. He did not even observe the regimen prescribed for him, and on the fourth day after the reception of the wound, he went abroad about his usual business.

These facts, and the others we have quoted, are certainly sufficient to prove the possibility of the operation we recommend on the stomach, in cases of imminent danger, in order to extract foreign bodies from it. Besides, in practical authors, we find that this operation has been perform'd with great success. Of this there is a memorable example related by several authors.*

A *Prussian* peasant feeling some pains in his stomach, thrust the handle of a knife pretty far into his throat, in order to excite a vomiting. This knife, which he only held by the point of the blade, escaping from his fingers, slid into the œsophagus, where it remained for some time, and produced a violent pain. The patient, afraid of the danger he was in, attempted to procure a discharge of the knife, by suspending himself with his head downwards; but perceiving that the expedient was useless, he drank a great deal of beer, which made the knife descend into his stomach.

The patient being still more anxious about his situation, consulted all the physicians and surgeons of *Konigsberg*; the result of which was, that in order to prevent the terrible symptoms to which he was exposed, it was necessary to make an incision in the teguments of the abdomen, and in the stomach, in order to extract the foreign body. The patient was young, and obstinately resolved to submit to every thing, in order to free himself from the danger in which he was. He was prepared for the operation by a gentle purge, and the use of oleous and balsamic medicines. The lead-stone plaister was applied

* *Histoire de Prusse*, part 2. chap. 2. *Cluverius*, *Epitom. Histoire*, Lib. 11. *Append. Ephemerid. Beckerus*, Dec. 2. ann. 5. & 8. *Obs.* 167.

plied to his stomach, and M. *Schwaben*, surgeon and lithotomist, was chosen to perform the operation about six weeks after the accident happen'd.

The patient being tied down on a board, and the part where the operation was to be performed (which was on the side in the left hypochondrium) being mark'd with ink, the surgeon made a longitudinal incision about two inches in extent. He first open'd the skin, muscles, and peritonæum: the stomach did not present itself when this incision was made, because it was very much collaps'd; the surgeon laid hold of it with a crooked needle, and drew it towards him; the knife also approach'd, and the point of it was easily perceived through the membranes of the stomach. He made an incision where it appeared, and speedily extracted the knife, which was ten inches long.

The gentlemen who relate this history, say, that as soon as the knife was extracted, the lips of the wound in the stomach were exactly brought into contact, that the wound of the teguments was united by five pins, that some drops of *Spanish* balsam were poured into it, and that a defensive plaster was applied over it. The patient observ'd a very strict regimen, and used vulnerary and balsamic drinks, and some anodyne and emollient clysters. No considerable symptoms supervened, and he was perfectly cured in a very short time. The knife is preserved in the electoral library of *Konigsberg*, where the picture of the peasant to whom this accident happen'd is also to be seen.

This is not the only example of this kind, since many others occur in practical authors. *Crollius** informs us, that at *Prague* he saw a peasant, who in diverting himself in an alehouse, swallowed a knife nine inches long. The point was turned a little above the bottom of the stomach, on the left side,

* In præf. Chym. regal. Basil. Ephemerid. Dec. 2. ann. 10. Obs. 1.

side, and the handle was turned towards the spine of the back. Two months after this terrible accident, the knife was successfully extracted from an incision made in the stomach, by *Florian Mathis*, first surgeon to the emperor. The patient was speedily recovered, without any remaining incommodity.

It is related in the *German Ephemerides**, that a *Prussian* woman swallowed a knife seven inches long, which she introduced into her throat in order to make herself vomit. The point, of which she had hold, slipped from her fingers, and stuck in the palate. She in vain attempted to extract it, for it was gradually more and more depress'd, till at last it fell into the stomach, where it remain'd three days, without producing any pain. Then she felt a pungent pain, and soon after the point of the knife was perceived by a touch in the left side. The pains, which were more and more augmented, induced the patient to seek for relief; accordingly she applied to Dr *Hubner*, of *Rastemburg*, who, after mature deliberation, and an assurance from a number of examples of wounds of the stomach happily cured, and from some similar operations which had before succeeded several times, on the eleventh day made an incision in the left hypochondrium, opposite to the point of the knife, which had already pierced the stomach, and excited a gentle suppuration in the wound of that organ. The practitioner extracted the knife with small pincers, and the patient was very soon cured.

All these examples ought to encourage surgeons to perform the same operation in similar cases. It must, however, be observed, that the success in a great measure depends on the part of the stomach in which the operation is performed; for it is certain, that it would be very dangerous to open the
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* *Idem*, Cent. 9. ann. 1720.

stomach in its superior part, or its bottom, on account of the vessels which run along the large and small incurvations of that organ. We must also advert to the different situations assum'd by these incurvations, when the stomach is full or empty; for when it is full, we know that its bottom, or large incurvation, lies forwards, and its small incurvation backwards; that when it is empty, it contracts itself, and consequently, that the vessels of the two incurvations are farther distant from each other. I believe it would be proper, in order to avoid the inconveniences found in these two cases, not to perform the operation when the stomach is very full, nor when it is entirely empty. It must therefore be only moderately full, for then, its bottom does not present itself enough to expose the vessels, lodged in it, to the danger of being open'd, and the sides of the stomach have by this means a greater extent than when it is empty. For this reason, if the stomach is empty when we perform the operation, we must order the patient a quantity of liquor sufficient to distend it moderately: then we must make an aperture in the teguments, in order to lay the stomach bare. We may even begin by piercing the stomach with a groov'd trocar, in order to give vent to the liquor; then, by the assistance of the groove, we must dilate the wound on one side or another, that is, we must avoid conveying the instrument to the superior part, or to the bottom of the stomach, for fear of touching the vessels.

The attention of the surgeon in the care of these operations, and wounds of the stomach, ought to be fixed on a proper regimen; because the discharge of the aliments from the wound, and the labour of digestion, are great obstacles to the re-union of these wounds. We have seen, in some of the preceding observations, that the only nourishment allowed to patients of this kind, consisted of two ounces of
broth

broth or gelly, in twenty-four hours, and for ordinary drink, a vulnerary and balsamic infusion, but in small doses at a time. Some practitioners justly condemn aliments entirely liquid, because they too easily escape through the wound, and keep it open. They prefer a small quantity of jelly, or a few yolks of eggs a day, because a little of these aliments contains more nourishment than a much larger quantity of liquid aliments, and is less ready to be discharg'd from the wound. The precaution would seem to be still more sure, if aliments were totally prohibited for a day or two, which is nearly the time that nature employs in the agglutination of wounds cur'd by re-union; we may, if it is necessary, during that short time, have recourse to nutritive clysters: there are numberless instances of persons, who, by means of these, have been nourished for a considerable time. The re-union of wounds, when formed by a simple consolidation, is so speedy, that the patients may very well want nourishment during its formation. What is most to be dreaded in the first day, is the inflammation, which, in consequence of the suppuration it produces, may destroy the agglutination, and re-open the wound. Now, venesection becomes necessary to prevent this; but the use of moistening drinks, which are proper for the cure of this symptom, is in this case to be forbid; so that, in order to supply their defect, we must have recourse to clysters, of which the most emollient and moistening are preferable to those of the most nourishing kind.

We have before seen several examples of extraneous bodies stopped in the intestines, in parts, where they were situated near the surface of the body, so that it would be easy to extract them by an operation similar to that perform'd on the stomach, for the same intention. These bodies

Operation of enterotomy to extract foreign bodies.

have produced fixed and cruel pains and other symptoms, which have been succeeded by death. There have even been cases in which these bodies, though retained in the intestines, have formed very considerable tumors externally. I do not, however, find any practitioner who, in such cases, has ventured to make an incision in the teguments and intestine, to extract such bodies. We have a great many facts which, by analogy, seem clearly to establish the possibility of this operation, which has been often seen perform'd by nature herself. It may perhaps be said, that nature gently and slowly performs operations, which we cannot practise without extreme danger, and even sometimes without producing certain death.

Analogy is one of the sources which contributes most to the improvement of arts, but its application ought to be confined to very strict laws. Whatever resemblance there may be between one thing and another, yet there are always some differences to which we ought to be attentive. For this reason comparison is not a very sure guide when we follow it inconsiderately, especially in the sciences; but in arts, it is more to be depended on, because we more clearly see the different relations which ought to lay a foundation for our decisions. In a word, by a little attention we perceive, that nature in opening a passage through the substance of the parts by suppuration, acts otherwise than the surgeon who performs the same operation by a cutting instrument. Suppuration, especially that of the purulent kind, is establish'd in the cellular texture found almost in all the parts. This suppuration destroys and macerates some plans of fibres, and some membranous laminæ, and by little and little pierces into the weakest parts. It generally spares the veins, nerves, and considerable arteries. The cutting instrument, on the contrary, cuts every thing which presents itself
to

to it, and the artist who directs it, cannot always avoid cutting some parts without danger, which sup-
puration would have spared.

We have not therefore applied analogy improperly, when we have observed, that we may imitate nature in procuring, as she often does, an issue to extraneous bodies, stopt in the intestines. It seems, however, that nature may, by examples she has shewn, suggest, at least to enterprising surgeons, the idea of an operation, which may lay a foundation for some hope, in cases, where, for want of having recourse to this extreme remedy, death becomes unavoidable. But I do not think that we ought to determine absolutely, and with certainty, from these examples alone. We must have other facts, which in every respect more resemble the operation of which we speak; and experience furnishes us with a sufficient number of these facts, in the cure of wounds of the intestines. On this subject the reader may consult the practical writers below mentioned*. We shall only here relate an example of these happy cures, communicated to us by M. *Froumantin*.

A soldier received a thrust of a sword, about a finger-breadth below the navel. The external aperture was so small, that the wound was look'd upon as very simple, though the patient continually complain'd of very intense pains in his abdomen, and could keep himself in no other situation than lying on his back. M. *Froumantin*, who saw the patient on the tenth day, perceived that a very fluid matter, of a greyish colour, and of a highly fetid smell, was discharged from the

LVI. Observation,
by M. *Frouman-*
tin, on a wound
of the intestines.

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wound,

* *Fallopious*, libell. de vuln. cap. 57. *Albucasis*, Meth. Med. lib. 2. cap. 58. *Paré*, lib. 10. cap. 35. *Vidus Vidius*, comm. in libr. *Hippocratis* de vuln. *Hollerius*, Comm. ad aph. 18. *Hipp.* libr. 6. & Obs. 17. libr. propr. *Jacotius*, Comm. 3. ad aph. 17. libr. 1. sect. 3. Coac. *Hippoc.* pag. 1002. *Tulpius*, Obs. Med. libr. 3. cap. 20. *Heurnius*, Comm. sect. 6. aph. 18. *Rumlerus*, Obs. 39. *Vigierus*, Chir. libr. 2. cap. 26. *Cattier*, Observ. 5. *Chabert*, Obs. Chirurg. pratiqu. Obs. 96.

wound, and suspected that the intestine was open'd. The external wound was so little, that the smallest probe could hardly be introduced into it. *M. Froumantin*, by the consent of several surgeons then present, determined to dilate it, in order to give an easier vent to the stagnant matter. He had hardly sooner made this dilatation, than a quantity of fæces, as large as a small nut, and considerably indurated, was discharged. He found the intestine adhering to the peritonæum, and dressed the wound with a flat dressing, for fear of detaching the adherences of the intestine. The patient, after this operation, had no symptoms, the fæces gradually ceased to flow through the wound, and the patient was perfectly cured on the nineteenth day.

These examples are sufficient to prove that we may successfully open the intestine in order to extract foreign bodies, not only in the pressing cases we have mentioned, but also in others which occur more frequently in practice, that is, when there are extraneous bodies found in hernias. This frequently happens; for such bodies as pass into the portion of the intestine which forms the hernia, are difficultly discharged from it, on account of the narrowness of the passage, and because the organic action of this portion of the intestine is impair'd.

M. Petit informs us, that a man afflicted with an hernia which re-enter'd easily, had violent vomitings, and intense pains in the part of the descent. The patient tried to reduce the hernia as he used to do, but could not succeed.

LVII. Observati-
on, by *M. Petit*,
on the claw of a
sea-mew extracted
from an inguinal
hernia.

M. Petit advis'd the operation, but the patient would not consent to it, till he was so bad that it could hardly be attempted for fear he should die under it. However, charity, more powerful than dread, determined *M. Petit* to perform it. The intestine was found pierced by the claw of

a sea-mew, which the patient had swallowed some time before.

M. de Boismortier also relates, in an observation he has communicated to the Academy, that in an exomphalos on which he perform'd the operation, he found an ear of barley with all its calices. This ear was discharged from a portion of the intestine, which was comprehended in the hernia, and had fallen into a mortification.

LVIII. Observation, by M. de Boismortier, on an ear of barley extracted from an exomphalos.

In the Memoirs of the royal academy of sciences†, we find a case, in which it would have been absolutely necessary to have perform'd the operation we propose, if a gangrene had not supplied its place. M. Farcy was called to see a street-porter, who for eight years had labour'd under an incomplete inguinal hernia, which he could easily return. This hernia augmented greatly and suddenly, so that the patient had the symptoms of a strangulation. M. Farcy durst not attempt the reduction, on account of a seemingly osseous hardness which he felt in the tumor. This surgeon made several venesections on the first days, order'd clysters, and applied to the hernia emollient cataplasms, which he continued during four days; but these topics did not soften the tumor.

M. Farcy proposed the operation for the bubonocoele, but the patient would not submit to it till a kind of suppuration happen'd in the hernia. Upon M. Farcy's opening the tumor, an ill-digested pus, of an insupportable smell, was discharged from the herniary sack, and the ileon was totally putrefied. M. Farcy was surpris'd when he extracted from it small bones, which he knew to be those of a sheep's foot, and of which he extracted sixteen at two or three different times. The patient had

I i 3

swal-

† For the year 1722.

swallowed them the night before this symptom appeared. *M. Farcy* cut off four finger-breadths of the gangren'd intestine, and kept without the abdomen an almost equal part of it, which being also gangrened, was separated naturally. The fæces were for some time discharged through the wound, but afterwards resumed their natural passage, and on the thirty third day the patient was perfectly cured without a fistula, and returned to his business as well as if this accident had never happen'd to him.

Similar facts have been observ'd by other practitioners. *Schroeckius* * says, he extracted from an inguinal hernia, in which there was an abscess and gangrene, several small bones of different figures and bulks, one of which had some angles and asperities. *Winglerus* †, upon opening the carcass of a person who had died of an hernia, discover'd that this disorder was formed by the *cæcum*, and found several small bones of a fowl retained in the hernia by the valve of that intestine.

By these facts we see that there are cases where, in hernias, it is necessary to open the intestine, in order to extract foreign bodies; for supposing a surgeon in performing the operation for the bubonocoele finds a bone or any other body, which produces particular symptoms, and hinders the free reduction of the intestine, he ought not to leave his operation imperfect, neither is he to wait till a gangrene procures an issue to such a body; since this method of treatment is not so safe as the incision which may be made, and since the symptoms do not always admit of a delay.||

Grant.

Case in which the operation of enterotomy seems principally necessary and easy.

* *Mangeti* Biblioth. Chirur. Tom. 2. de Hern. pag. 397.

† *Boneti* Med. Sept. Lib. 3. de imo ventre, sect. 15. cap. 7.

|| It is not necessary here to mention, that if it be requisite to open the intestine, we must keep it without the abdomen till the wound is closed, in order to avoid the extravasation which might happen if it was return'd into the belly.

Granting that we could dilate the ringlet sufficiently to reduce the intestine with the extraneous body, and that this body should not be so engag'd by the inflammation of the intestine, as that we had reason to dread its stopping up the passage of the fæces by its being return'd into the abdomen, and its producing a kind of strangulation; yet other circumstances may hinder the reduction of the hernia, such as old adhesences, which cannot be detach'd; and in this case we must be obliged to open the intestine, in order to extract the foreign body which supports the symptoms.

The success of similar operations, performed by M. *Arnaud* in the same circumstances, in order, as we shall elsewhere shew, to procure a vent to the indurated fæces contained in the intestine, and which prevent its reduction, does not any longer permit us to deprive patients of so essential an assistance.

MEMOIR XVIII. By M. de la FAYE.

Observations on Hare-Lips, with which Children are born: In which the Means of correcting this Species of Deformity are shewn.

IN the year 1733 I was called to see a child of four years of age, born with a hare-lip of a singular kind. Not only the upper lip, but also the whole palate, and even the uvula were divided. Each edge of the lip, towards the inferior part, seem'd to form a kind of nipple, which was inflated when the child laugh'd. *Fig. 3. A A represents the two nipples in that condition. Fig. 1. A A represents them in such a state as they were when the child was entirely tranquil. See PLATE V.*

I. Observation, by the same author.

The edges of the lips surrounded these nipples, and terminated at each side of the nose. A small bridle, or rather filament, internally attach'd each part of the lip to the gums, near the edge of the division of the maxillary bones. Thus the two parts of the lip left a considerable interval between them. This interval was twelve lines broad when the child remain'd in its natural state, and sixteen when it laugh'd or wept.

In the middle of this vacuity was seen a part of the maxillary bones, whence arose the two *incisive teeth*, fix'd in their sockets, and cover'd with their gums. This portion, which was solid and loose, projected about five lines beyond the rest of the jaw-bone, for which reason I shall call it an *osseous eminence*. A small portion of flesh, of a round figure, attach'd near the extremity of the nose, and which appeared to be a portion of that which the lip wanted, hung before this eminence. This piece of flesh only in part cover'd the teeth, and considerably

- || Obi. med. cent. Obi. 42.
 || Ephem. Germ. ann. 2. Obs. 23.
 § Acta Hassnienfia, Obs. 13.
 || Operat. et experiment. Chir. Experiment. 22.
 §§ Med. Sept. lib. 1. sect. 5. cap. 6.
 ++ Med. Sept. lib. 2. sect. 1. cap. 1.
 ** Microtechnie sect. 2. part. 1. §. 9.
 ||§ Traite des Hernies, chap. 118.



Fig. 3.



Fig. 6.



which appeared to be a portion of that which the
lip wanted, hung before this eminence. This piece
of flesh only in part cover'd the teeth, and consi-
derably

derably augmented the deformity of the child, especially when he open'd his mouth, as is well represented in *Fig. 2.*

Two vacuities which were between the *osseous eminence* and the two parts of the lip, anteriorly separated the maxillary bones into three, and terminated in one vacuity, which divided the whole bone of the palate, and the fleshy partition of the uvula. This vacuity discover'd the inside of the nose, and that partition which divides it in two, all along the palate. We may easily perceive, from this description, not only that the child was very deform'd, but also that a great deal of trouble was necessary to bring it up, and that it could not form articulate sounds.

The mother, whom I interrogated with respect to what had happen'd to her during gestation, told me, that she had been surpris'd at the sight of the head of a thornback; but the little resemblance between the head of this fish and the hare-lip, no more favours the conjecture of those who refer these kinds of deformity to the bad conformation of the foetus in the egg, than the sentiment of those who attribute it to the imagination of the mother.

Manget *, *Anton. de Heydes* †, *Henr. Volgnadius* ‖, *Bartholin* §, *Nuck* |||, *Job Ludov. Hannemannus* §§, have given us a description of this species of hare-lip. *Daniel Lud* ††, *Van-Horne* **, and *Franco* ||§, have said something of the manner of remedying it. The first relates, that in a child who had this deformity, the surgeon cut off the *osseous eminence*, in order to procure a facility of sucking, and that the

* *Bibl. Chirurg. de labior, morb. Tom. 3.*

† *Obs. Med. Cent. Obs. 42.*

‖ *Ephem. Germ. ann. 2. Obs. 23.*

§ *Acta Hassnienfia, Obs. 13.*

||| *Operat. et experiment. Chir. Experiment, 22.*

§§ *Med. Sept. lib. 1. sect. 5. cap. 6.*

†† *Med. Sept. lib. 2. sect. 1. cap. 1.*

** *Microtechnie sect. 2. part. 1. §. 9.*

||§ *Traite des Hernies, chap. 118.*

the actual cautery was applied for stopping the hemorrhage. This operation, undertaken in so tender an age, was, as we see, but very imperfect. The other two order the *osseous eminence* to be remov'd with a cutting forceps, the figure of which is to be seen in *Schultetus's* Chirurgical Arsenal, and to correct the rest of the deformity in the manner practised in ordinary hernias, a thing which they say is very difficult. *Hic casus sane difficilis est*, says *Van-borne**.

The approbation of *M. de la Peyronie*, to whom I communicated the plan of the operation I proposed to perform on the patient, whose case is related in this observation, encouraged me against the dread inspired by this difficulty. I therefore first disposed the child for the operation by general remedies, and though some authors pretend that this method is useless, yet I am certain it is not culpable.

On the 13th of *May* 1733 I performed the operation in the following manner, in presence of *M. de la Peyronie*, Messrs *Petit*, *Malaval*, *Morand*, *Pibrac*, *Verdier*, *Caumont*, *Houftet*, &c. I with the bistory separated the portion of flesh represented by *D Fig. 1. 2. 3.* from the *osseous eminence*, which I cut with *cizars*, whose branches are very long, and whose blades resemble those of *shears*. I cut the portion of flesh *D* to the right and left, in order to give it an angular figure. I divided the two bridles, which attached the two parts of the lip to the gum, and which would have hinder'd me from uniting these parts. I cut about two lines from off the edges of these parts, whose artery discharged a great deal of blood, which did not incommode me, because the hemorrhage ceases as soon as wounds of this kind are united. I made the twisted suture by the help of an assistant, who with his hands brought the two cheeks near each other towards the division. I passed two pins as near as I possibly could

* *Microtechnie*, sect. 2. part. 1. §. 9.

could to the internal membrane of the lip, in order to favour the union of the internal parts. I passed the first near the nose, and twisted about it two or three folds of wax'd thread, under which I engag'd the portion of flesh, which it was not possible for me to cross. I passed the second very near the edge of the lip, and twisted round it another similar piece of thread, that I might be able separately to remove both the threads and the needles. The pins I used were of the *German* kind, flexible, long, and small, because these are preferable to pins of gold, silver, steel, and those called larding-pins.

When the division of the two parts is very great, *Celsus**, *Guillemeau*†, *Thevenin*‡, and others, in order to facilitate their conjunction, advise us to make an incision in each cheek in form of a crescent. Some others, in similar cases, order us to make incisions in the internal side of the mouth; but, besides that such incisions of the cheeks produce a deformity by their cicatrixes, I think them useless, as well as those made in the internal part of the mouth; for the skin of itself yields as much as is necessary to bring the two parts of the lip together, however far distant they may be from each other. If there is any obstacle to this union, it must proceed from the nose, and this obstacle can never be remov'd by incisions made either in the cheeks or internal parts of the mouth.

The greater interval the parts of the lip, on which I operated, left between them, the more reason I had to dread the efforts they should make on the pins. Thus it was necessary that the dressing should help the pins to resist these efforts; for the success of these operations often depends on this circumstance. I crossed under the nose two linnen bandages, whose
extre-

* *Medicin. lib. 7. cap. 8.*

† *Traite cinquieme des Operations, chap. 11.*

‡ *Operat. de Chirurg. chap. 13.*

extremities, which were cover'd with the plaister of *André de la Croix*, I applied to the cheeks to keep them near each other.

In order to hinder the transpiration of the cheeks from detaching these plaisters, and to diminish the effect of the action of the muscles of the lip, I put upon each cheek two thick compresses, which I secur'd pretty tightly by means of a small bandage, which I applied thus: I applied the middle of the bandage to the nap of the neck, and made every head of it come from behind forwards, on each compress, and cross'd them under the nose. Then I return'd the heads on the compresses, and fixed them to a kind of cap, which I had proportion'd to the child's head. As the motion of the inferior jaw-bone might have occasion'd some disorder, I applied under the chin a sling, whose heads I affix'd to the cap, which did not permit the jaw-bone to fall down any further than was necessary to allow the child to take broth, ptisan and jelly.

Some authors advise us to use a plate of lead, in order to sustain the lip, when the patient on whom the operation is perform'd has no teeth behind the part where the lips are united. If this plate be of any use, I ought to have employ'd it, since I had cut the anterior part of the jaw-bone; but the length of the pins I used for the suture did not render it necessary, since the two ends of these pins were supported by the extremities of the two parts of the jaw-bone, the middle of which I had cut away.

The child, who during the operation had fallen into a fainting fit, soon recover'd from it, and pass'd the night calmly. A gentle fever supervening next day, forced me to bleed him. I observ'd that his crying and weeping produced no considerable motions except in the throat, because the bandage kept all the parts in their proper situation.

I removed the dressing on the second day, and found

found that the portion of flesh had escaped from under the threads, and that I could not again place it under them. I applied a dressing like the former, which I did not remove till the fourth day. On the seventh day I dressed the child for the third time, and extracted the inferior pin, which I found loose. Two days after I extracted the other, and found the lip perfectly re-united; but as the union was not as yet sufficiently solid to resist the action of the parts, I applied the dressing again, for some days more: I found the wound I had made in cutting the osseous eminence perfectly cured.

In order to see the success of this operation, and the advantage the child reap'd from it, 'tis only requisite to view *Fig. 6.* which represents it as it is at present, and to compare it with *Fig. 1. 2. 3.* which represent it as it was before the operation. The nostrils in *Fig. 6.* are much narrower, and below the nose there is a continuity of the lip, crossed in the middle by a cicatrix. The superior lip, notwithstanding the breach in the maxillary bone, was upon a level with the inferior. There still remains in this lip, a small hare-lip, B *Fig. 6.* which does not proceed from the fault of the union, but from my not cutting enough from the edges of the nipples, A A *Fig. 1. 2. 3.* These nipples have a semicircular figure, which must be removed if we intend to unite the lip in such a manner as that no hare-lip may remain.

The child is therefore much less deform'd than it was before the operation, and the sight of it is no longer shocking and offensive. This is not the only advantage the child reap'd, since he speaks distinctly, tho' a little thro' the nose; a defect which he would no longer labour under, if his palate was entirely closed up. I saw him four years after the operation, when the cavity in the arch of the palate was diminished; so that there is reason to hope that
the

the bones will at last be totally united: and perhaps nature herself has already made this union.

Some time after this operation, a young man of fifteen years of age, who had a hare-lip, applied to me. This hare-lip was at least as deform'd as that last mention'd: 'tis true, the maxillary bones did not stand out, but the nose was very large. A portion of flesh, attach'd near its end, and which seem'd to be a part of the lip, only cover'd the two incisive teeth imperfectly. All the palate of the mouth was divided, and the interval between the two parts of the lip was very great.

The patient's father told me that his wife, during gestation, was frightened by the sight of a lion; which affords us no more knowledge, with respect to the cause and origin of these disorders, than the account given by the mother of the child mention'd in the former observation.

Tho' I had read in *Juncker* * that these species of hare-lips, in which the lip is divided in two parts, are almost never cured (*duobus in locis quando fissum est labium, vix unquam malum curatur*) yet the success of the operation on the child of four years of age was so perfect, that I did not despair of correcting the deformity of this young man, by an operation nearly similar to that which I have described in the preceding observation. I performed it in presence of Mess. *Verdier, Caumont, Houstet*. and *Debiat*. I removed no part of the jaw-bone, because there was no prominence of it. I cut the edges of the division of the lip, beyond the circumference of each nipple; I cut also the margin of the portion of flesh, in order to form an acute angle of it. With the first needle I pierc'd not only the two parts of the lip, but also the portion of flesh, that it might fill up the angular space left between these

these two parts, after I had brought them as near as possible to each other: I afterwards applied a dressing similar to that described in the first observation.

The patient was blooded five times after the operation, and venesection was repeated next day, because a fever had superven'd. I order'd him to lie on his back, that the mucus of the nose, which fell copiously on the dressing, might be discharged by the mouth.

On the fifth day after the operation, I left every thing in a good condition, and even thought of removing the pins next day. But an inadvertence of the patient's father, in a moment destroy'd all the fruits of this operation; for some tobacco, which he rasp'd hard by the bed, made the patient sneeze violently fifteen or twenty times. Next day, on removing the dressing, I found a disorder which I did not expect. One of the pins was fallen out, and the other only stuck in one side: they had torn the parts thro' which I passed them, and had carried off the bulk of a pea of the substance of the lip on the right side. The two portions of the lip, which I had exactly brought into contact with the portion of flesh, were separated from it, and only remained united to each other in the inferior part. As the lip and the portion of flesh were inflated, and in suppuration, I deferred till next day to repair this fault, and I imagined I might procure the re-union of the two parts of the lip to the portion of flesh, without cutting them a second time. I made two stitches of the interrupted suture, which kept the lip united to the lateral parts of the portion of flesh, and not to its inferior part. To supply what those two stitches could not do, I used two adhesive plaisters, broad at one end and narrow at the other. I applied the broadest parts of these to the cheeks, so that their narrowest parts, to every corner of which was fixed a double wax'd thread, were near
to

to each joining of the lip to the portion of flesh. I passed the two inferior threads under the lip, and tied them; I afterwards tied the two superior threads, and fix'd them to the cap; so that by drawing the plaister, they raised the inferior threads, which, by that means, brought that part of the lip which the stitches could not re-unite into contact with the portion of flesh. By this species of dry future, I procured the advantage of dressing the wound without undoing any thing. I applied the rest of the dressing in the same manner I had done to the child of four years of age, and twenty days after the whole was perfectly cured. The cicatrix has the form of a Y, and the patient's deformity is so well corrected, that it hardly appears that this operation has been performed on him.

In 1735 I was present at a similar operation, which
 III. Observation. M. *La Chaud* performed on a man of thirty years of age, whose hare-lip was like that which is the subject of the preceding observation. No symptom superven'd during the cure, and fifteen days after the patient was perfectly cured, and no external deformity remained.

Verduc * and *La Charriere* † order us to use a *ferre-tete*, to re-unite the divided flesh, by compressing the cheeks, and to keep it in contact. This is a species of steel circle, somewhat elastic, used by the ladies. These authors say that we must pass this species of bandage over the head, and apply the two extremities of it to the cheeks. But this instrument, which only supports the cheeks, can never serve to re-unite the divided flesh of the lip; and its circular figure, which hinders it from embracing the head every where exactly, renders it very loose and incommodious.

M. *Quesnay* prefers a flat, broad, and supple piece
 of

* Operat. de Chirurg. Cap. 23.

† Operat. de Chirurg. Cap. 5 & 6.

of whale-bone, which he passes behind the nape of the neck, making the ends come upon the lip: He applies it exactly every where with his hands, and cuts off each end exactly opposite to the edges of the nose, so that the ends may be about an inch distant from each other. When these measures are taken, he removes the whale-bone, in order to fix to each end of it a large portion of the plaister of *Andreas de la Croix*, and then puts the whale-bone in its proper place, so that the plaisters advance but very little on the lip; that is, they hardly pass the folding of the cheek. Thus the ends of the whale-bone, which go no farther than the plaisters, do not reach so far on the lip as the length of the whale-bone would permit them. But he afterwards applies to this whale-bone a bandage, which is slit at one end, so as to pass the other, in order to cross it on the lip, and by contracting this bandage, the whale-bone is applied exactly round the head. Its ends advance upon the lip, these carry the plaisters along with them, and the plaisters draw the flesh, and convey it towards the divided part. The whale-bone, being thus secured, keeps the flesh firmly in contact till the wound is perfectly re-united.

In this manner M. *Quesnay* cured a hare-lip, whose edges were very far distant. One of the pins had fail'd, and in the inferior part of the wound left a dilaceration, which made it impossible, or at least very difficult to apply another pin. M. *Quesnay* perfectly supply'd this defect by means of the whale-bone and the plaisters. After having applied them, he order'd an assistant to lay hold of the whale-bone behind, and push it forwards to make the flesh advance to the part of the division. He put a small piece of soft linen between the gum and the lip: he placed the edges of the wound opposite to each other; and, in order to retain them, applied a

IV. Observation,
by M. *Quesnay*.

small adhesive plaister, which hung below the lip; in order to be folded within the mouth between the lip and the gum, and to include the solution of continuity especially at the extremity of the lip. Externally he applied a small but pretty thick and soft compress over the plaister; and, last of all, he applied a bandage to secure the dressing and the whale-bone. The success of this practice was very happy and expeditious.

In 1719, M. Gerard was called to a girl of *Provence*, about nine years of age. born with a hare-lip, which render'd her monstrously deform'd. The superior lip was not only divided, but also the bones, which form the roof of the mouth, were, from the anterior part to the fleshy partition, so considerably separated, that the little finger might have been introduced into the interval between them. The two incisive teeth, whose roots were far distant, and their points pretty near each other, advanced out of the mouth, and raised the two portions of the lip. The girl's parents had never heard her pronounce a single word; she swallowed with difficulty, and the liquids passed thro' her nose, when she drank without attention.

The bad success of several attempts made in *Provence* to remedy this deformity, induced her parents to bring her to *Paris*. M. Gerard, after mature examination, thought the first step to be taken was to remove the two prominent teeth, which he thought had spoil'd the former operations; and, if left, might hinder the approach of the maxillary bones. He did not affirm that this conjunction would happen, because it depended entirely on nature, and could not be procured by art. He only gave the parents reason to hope that their daughter, by the union of the two parts of the lip, might, at least, pronounce some words.

After

After removing the two teeth, he prepared the girl by some general remedies, and performed the operation in the following manner: He separated the gums from the two parts of the lip which were adherent to them; he cut the edges of these parts, brought them into contact, and made the twisted future. The separation of the two parts, before their re-union, was so considerable, that M. Gerard thought it necessary to use all precautions to secure them in contact. He applied to each cheek an adhesive plaister, which had, at its extremity towards the union of the lip, two ribbons, by means of which he kept the two cheeks near each other, by tying the two superior and the two inferior ribbons, after which he applied the ordinary dressing over the whole.

After the operation, the girl was seized with a violent fever, which however yielded to venesections and lenitive draughts, which proves that preparations are not absolutely useless. M. Gerard remov'd the dressing on the fourth day, and finding every thing in a good state, applied a similar dressing. On dressing the wound a second time, on the sixth day, he found the two needles separated from the lip, and adhering to the pledget which was laid on the wound. The two portions of the lip were, however, perfectly united; there only remained a small external wound, which was entirely cicatrised on the sixteenth day, and on the eighteenth the patient returned home.

M. Gerard attributed the separation of the needles to several causes. He thinks that they continued too long, and that the great separation of the two portions of the lips had hinder'd him from passing them so deep into the lip as it was necessary, and obliged him to make the thread a little too tight.

On the sixteenth day after the operation, the girl, impatient at not being understood by signs,

spoke for the first time, and angrily ask'd for something to drink. She has since continued to pronounce some words very distinctly. The mother, who came to *Paris* two years after, told M. Gerard that her daughter pronounced every thing easily; that her drink passed no longer thro' her nose, and that the bones of the roof of the mouth were almost entirely united. Ten years after the patient herself came to M. Gerard, to confirm the mother's relation. The deformity was so perfectly corrected, that M. Gerard could hardly perceive it; the cicatrix of the lip scarcely appear'd, and the bones of the palate were so well united, that no mark of their former division could be seen.

As to the union of the maxillary bones, the same thing has probably happen'd as to the child mention'd in the first observation; for, when I saw it four years after the operation, the union was advanced. I have made the same remark on the patient mentioned in the second observation; for, two years after the operation, the division of the bones of the palate was much diminished. This did not happen to the patient mention'd in the third observation, which makes it probable that the union of the soft parts, when soon perceived, contributes to the restoration of the hard parts. Perhaps the air which touches these, without being modified, causes a dryness of the fibres, and hinders their elongation, and consequently the union of the bones. It is certain that, in order to procure the union of the bones, it is of great advantage to perform the operation in the patient's infancy.

M. de la Peyronie, at *Compeigne*, saw a child with a deformity similar to that mentioned in the first observation. Some time ago I saw a child of two months old, who had the superior lip divided opposite to one of the edges of the nose, and the roof

VI. and VII.
Observations, by
M. de la Peyronie,
and M. de la Faye.

roof of the mouth also divided as far as the uvula. As this child, who is now dead, had one portion of the superior lip larger than the other, it suck'd easily, whereas the others I have mentioned did not enjoy this advantage; which, however, was supply'd by cow's milk given with a spoon.

The hare-lips, in which the division is confined to the lip alone, are much more common than the others; but there is no less variety to be found among them. Sometimes the lip is divided into three parts, so that there is a division under each edge of the nose, and a portion of the lip under the nose itself. The lip is most commonly divided in one part, and in all its height, opposite to the column of the nose, or to one of its edges. It is rare that the division does not go from below upwards; and still more rare that it is found in the inferior lip.

Explanation of the Figures relating to the Observations on Hare-Lips.

Fig. 1. Represents the child in a state of calmness.

A A the two nipples.

B the osseous eminence, or portion of the maxillary bones, in which the incisive teeth are fixed.

D the portion of flesh attach'd near the nose.

Fig. 2. Represents the child when it open'd its mouth.

A A the two nipples.

B the osseous eminence, which appears more than in the preceding figure.

C the portion of flesh.

Fig. 3. Represents the child when it smiled.

A A the two nipples much more large and separated than in the two former figures.

D the portion of flesh more large, and covering the whole osseous eminence.

Fig. 4. Represents the osseous eminence separated from the jaw-bone, with the two incisive teeth still fixed in it. It is exhibited in its natural bulk, and view'd on its internal part.

Fig. 5. Represents the same osseous eminence, view'd on its anterior part.

Fig. 6. Represents the child as it is at present.

B the small hare-lip remaining.

D the portion of flesh, which could not be united with the lip, and which is much smaller than in *Fig.* 1. 2, & 3.

ME-

MEMOIR XIX. By M. PETIT.

On a Fistula in the Perinæum.

A Man of forty-five years of age was seized with a retention of urine, which he, for some time, neglected, because it was not total. As he discharged a quantity of urine sufficient to free his bladder from pressing inclinations to make water, he did not fall into those troublesome symptoms occasioned by a total suppression of urine. The patient, taking no measures to cure a disorder, the whole consequences of which he did not foresee, fell into a total retention of urine, and had recourse to the surgeons of the place, who used the catheter for five or six weeks, but desisted from it when he began to make water without its assistance, as he had done before the appearance of this last symptom; that is, little at a time; and, no doubt, by regurgitation; since the region of the bladder, where there was elevation, tension and pain, subsided, and became a little more soft, and less painful, in proportion to the quantity of urine he discharged. His urine was turbid, and had a fetid smell, which were certain proofs that it had remained long in the bladder.

State of the disease.

After he had continued more than two months in this state, there suddenly appeared a tumor, which possessed the urethra from the anus to the scrotum; his urine was a second time retained, and attempts were in vain made to relieve him by the catheter; a pain and tension of the hypogastrium superven'd, and was augmented speedily. The tumor of the perinæum extended into the scrotum and groins, and under the skin which covers the pubes and the penis. The progress of it was so rapid that, in

forty-eight hours, a gangrenous suppuration superven'd. Several apertures were made in the perinæum, scrotum and groins. Soon after, these parts discharged the matter they contain'd, the urine flow'd copiously, but involuntarily; a suppuration was established, the eschars and the gangrenous laminæ were separated, and a re-union form'd every where, except in the wound of the perinæum, which being continually overflow'd with urine, remained fistulous. The callosities which superven'd to this wound were so considerable that the surgeons performed a second operation, which was no more successful than the first.

This account is an extract from a long Memorial, in which my advice being ask'd, I desired the patient to take the advantage of the fine weather to come up to *Paris*, where he arrived in the condition above specified. I probed him, and found the anterior part of the anus as hard as the parts adjacent to the fistula, tho' the external fistulous aperture was more than two inches distant from it. The hardness in which the prostate gland was comprehended extended so far, that I could not find the boundary of it, with my finger introduced into the anus.

After this examination, I interrogated the patient, and concluded, from his answers, that, before my treating the local disorder, there was an internal cause to be removed. In proportion as I destroy'd this cause, by a proper salivation, the indurations near the fistula were dissipated; and that, of which the prostate gland was the center, was reduced to so small a bulk, that, without looking on it any longer as an obstacle to the cure, I performed the operation I had intended in the following manner:

I introduced a groov'd probe into the bladder; then, with a small bistory like that used by lithotomists, which I plunged into the external aperture
of

of the fistula, I cut about an inch of the fistulous sinus, without cutting the urethra; and with the same motion, by continuing to cut, but more deeply, my bistory enter'd the groove of the probe, which assisted me to continue the incision to the prostate gland, where I thought the internal aperture of the fistula was. Then, by means of the gorget, I introduced a pretty large canula, thro' which I made injections, till the suppuration was well established, and the bladder cleansed. Then I extracted the canula, and thro' the penis passed into the bladder a hollow probe, crooked, in the form of an S. This probe at first gave vent to the greatest part of the urine, which gradually, and in proportion as the wound closed, had no other passage. Thus the wound, being no longer moisten'd by the urine, was very soon re-united, and the patient perfectly cured.

I should never have cured this fistula, if I had not destroy'd the venereal virus before
Reflexion.
I performed the operation. This requires no proof; since every person will readily agree to it. But this third operation would have been as ineffectual as the other two, if I had not carried my incision beyond the neck of the bladder. In a word, experience convinces us that, by the operation, we do not cure fistulas, especially those of the perinæum, if we only open the external part of the fistula, and that its internal orifice must also be comprehended in the incision. In consequence of this, since the fistula of this patient had its internal aperture beyond the sphincter, it was necessary to carry the incision to this aperture, and comprehend the neck of the bladder in it.

I could not doubt but the internal orifice of the fistula was beyond the sphincter; because, when it is on this side of it, the urine cannot be discharged thro' the fistula till it enters the urethra, which it
only

only does by the efforts of the patient, when he wants to make water. This patient, on the contrary, without being advertised of the necessity of making water, and without any efforts, discharged almost the whole of his urine by the hole of the fistula, and not thro' the penis; or, if he discharged any this way, the evacuation was voluntary, and excited by the remainder of the urine; for the hole of the fistula was so small, that, notwithstanding the involuntary and continual discharge of urine from it, his bladder was full once or twice a day; so that, at each of these times, he with a full stream evacuated a glass of urine, especially when with his finger he stopp'd the hole of the fistula, near the edge of the anus. This hole was also smaller than the urethra; since, when he made water without stopping it, he discharged a much greater quantity of urine from the penis than from the fistula. I think I have sufficiently demonstrated that the internal hole of this fistula was beyond the sphincter, and that, consequently, the incision ought to extend itself to that hole.

If we sometimes cure fistulas in the perinæum by the use of wax-candles, without the operation, these are not such as have their internal aperture beyond the sphincter; for reasons, sufficiently obvious to those who are acquainted with the structure of these parts.

From this operation I conclude, that fistulas of the perinæum of this kind are difficultly cured, and will always remain incurable, if we do not begin by destroying the venereal virus, which is the primary cause of them; and that the operation will always prove ineffectual, when the internal hole of the fistula is not comprehended in the incision.

MEMOIR XX. By M. SIMON.

*An Enquiry into the Advantages, Safety, &c.
of the Cæsarean Operation.*

Several observations communicated to the Academy on the Cæsarean birth, which has succeeded on a living woman, and especially a happy example of this operation lately performed at *Paris*; in presence of several celebrated man-midwives, and other surgeons, have induced me to make an enquiry into this subject. This task to me seems highly useful, because, even in our own time, most surgeons seem to doubt of the possibility of this operation.

I shall divide this enquiry into two parts: In the first I shall relate the origin of the Cæsarean operation, the different disputes it has occasioned, and the authorities and facts which enable us to judge of the success to be expected from it. In the second part I shall examine the cases in which this operation ought to be performed.

First Part.

Proofs which establish the Possibility of the Cæsarean Operation.

There are cases in which delivery in the natural manner is impossible; so that, without the assistance of art, the death of the mother and infant is unavoidable. To supply the defect of nature in these cases, surgeons have imagined that they might make in the abdomen and uterus an incision sufficient for the extraction of the foetus; and this incision is called the Cæsarean operation.

There are, in general, two cases, in which this operation becomes necessary: the first is, when the death

death of the mother happens before delivery ; and the second, when the delivery by the natural passage is impossible, tho' the mother remains alive.

It seems, if we may believe *Pliny**, that it is a long time since this operation has been performed, especially in the first case: " Those, says he, are
" fortunate, who are brought into the world after
" the death of their mother, as was *Scipio Africa-*
" *nus* the elder, and the first of the *Cæsars*, so called
" from an incision made in the uterus of his mo-
" ther."

This passage of *Pliny* has been differently interpreted by authors ; since some † have said that it ought to be understood of *Julius Cæsar*, the first Emperor of *Rome*, and they assure us that it was necessary to make an incision, in order to extract *Cæsar* from the uterus of his mother. But *Bayle* does not hesitate to affirm that this is a falshood already refuted by *Zonaras*‡.

It is evident that *Bayle* justly opposed the application which these authors made of this passage of *Pliny* to *Julius Cæsar* ; for, as the author says, his mother *Aurelia* took great care of his education, and only died when her son waged war against the *Gauls*. But *Aurelia* might have possibly survived the operation ; so that this remark does not seem absolutely to destroy the opinion of those who maintain that *Cæsar* was extracted from the uterus of his mother by incision ; it only proves that it is not *Cæsar* of whom *Pliny* has spoken. Some, however, believe that the Cæsarean operation took its name from *Cæsar* ; but, according to *Pliny*, we must rather think that *Cæsar* took his name from the operation ; for, when speaking of those brought into the world by means of this operation, he says they were

* Hist. Nat. Cap. 9. Lib. 7.

† *Servius, Cedrenus, Malala, Suidas, Glycas, Constantine Manasse*, the author of the Chronology of *Alexandria*, &c.

‡ See *Bayle's Dictionary*, the word *Cæsar*, last Edit.

were called *Cæsares*, or *Cæsones*, from the incision made in the uterus of their mother.

If we should stop at the conjectures which naturally arise from the name of the Emperor *Cæsar*, and from the remark of *M. Bayle*, we might conclude that the Cæsarean operation was then performed on living women; but these conjectures are not decisive, neither do we with any certainty find that, in these remote ages, any attempts were made to preserve the life of the mother and child by this operation. It is, on the contrary, to be remark'd, that, in the latter ages, surgeons have greatly doubted of its success. However, I propose in this Memoir to shew that, on such occasions, greater advantages are to be reap'd from it, than when it is performed in the first case; for, when it is performed after the mother's death, it is not only useless to her, but also for the most part to the child; whereas, I shall prove, by a great many instances, that this operation, performed in the second case, has preserved the lives of a great many mothers and children.

I have not found, in practical authors, that surgeons have had recourse to this operation, before the beginning of the sixteenth century. The first we find is that related by *Baubin*, which he ascribes to a gelder who performed it on his wife †. In the year 1500, says that author, *Elizabeth Aleispachin*, wife of *James Nufer*, gelder, in the village of *Siergershensen*, being big with her first child, and labouring under pains for some days, called several midwives for her relief: these made a great many attempts to procure her delivery, but to no purpose. As her pains were very intense, and as there remained no hope of her relief, her husband told her that, if she would repose confidence in him, he would perform an operation, which, by the blessing of

† *Gaspari Baubini Appendix ad Roussetum.*

of God, might succeed. The woman replied that she was resolved to suffer every thing. As the affair was of the last importance, the husband ask'd leave of the president of *Fravensfelden* to perform the operation. This judge, at first, made some remonstrances; but being acquainted with the state of the woman, and the good intention of her husband, he consented that the operation should be performed. The husband returning home, told the midwives that such of them as were courageous enough to assist him, might remain in the room; but that such as were timorous, ought to retire. After having implored the divine assistance, he laid his wife on a table, made an incision in the abdomen, penetrated the uterus, and forthwith extracted the fœtus, and afterwards made several stitches of suture in the abdomen. The wound was happily re-united, without the supervention of any symptom to the woman. Some years after she was deliver'd of twins, one of whom, called *John Nufer*, was judge of *Siergershausen*, and was alive in 1583.

Francis Roussel, who lived towards the end of the sixteenth century, is the first I have met with who attempted, by reason and experience, to establish the Cæsarean operation on living women. In order to give an exact idea of it, we shall enter into a detail of the reasons which he alledges in favour of this operation, and afterwards relate the examples which support these reasons.

In 1581 *Roussel* published a very compleat treatise on this subject*.

In the first part of his book he founds, 1. the necessity and usefulness of the Cæsarean operation, on the imminent danger of the mother and child,
in

* The title of this work is, *A new Treatise of Hysterotomotoky, or the Cæsarean Operation*, which is the extraction of the infant by a lateral incision in the abdomen and uterus of a pregnant woman, when she cannot be deliver'd otherwise; and this, without injuring the life of the one or the other, or preventing conception for the future. At *Paris*, 1581.

in caſes where delivery ſeems impoſſible by the natural methods. There is no occaſion for enlarging on this reaſon, ſince the force of it is evident.

He eſtabliſhes, 2. the poſſibility of this operation, by inſtances of various kinds, which prove that wounds of the parts to be divided in this operation are not mortal.

He enters, 3. into a detail of ſeveral ſymptoms, which are incomparably more terrible than the operation he propoſes, and which, for the moſt part, may be even avoided by this operation. By this means he proves how neceſſary and poſſible it is.

He reduces theſe ſymptoms into five claſſes.

In the firſt he ſpeaks of pregnant women, whoſe children, being dead and corrupted, have produced in the uterus ſuch a putrefaction as has prov'd mortal to thoſe women who might perhaps have been preſerved by the aſſiſtance of the operation.

In the ſecond he ſhews, by ſeveral hiſtories of abſceſſes of the uterus, which have been ſucceſſfully open'd by the actual cautery, that this operation may ſucceed.

In the third he mentions ſeveral ulcers of the uterus, which have occaſioned the falling of the infant into the abdomen, and afterwards produced abſceſſes of the hypogaſtrium, that have been opened without danger to the mother.

In the fourth he ſpeaks of ſeveral amputations of the uterus, made by a cutting inſtrument, the cautery, or a ligature, without proving mortal.

In the fifth he proves, that a woman may conceive after this operation, and confirms his aſſertion by ſeveral examples.

In the ſecond part of his work, *Rouſſet* eſtabliſhes the ſafety of the Cæſarean operation, by the ſucceſs with which it has been attended on ſeveral occaſions. In order to aſcertain this ſucceſs, he firſt mentions the obſervations which have been communicated to him

him by men of veracity, and then the operations he has order'd to be perform'd.

These observations are reduc'd to seven.

In the first we find the history of the wife of one *Goddard*, at *Mesnil*, on whom the operation was six times performed, and all the children extracted alive. The seventh labour, however, prov'd mortal to this woman, because the surgeon who deliver'd her in this manner was dead.

In the second, *Ambrose Noir*, and *Giles le Brun*, surgeons, certify, that they thrice perform'd this operation on a poor woman near *Merenville*. *Roussset* wanted to see the woman and the place of the incision, but was informed she was lately dead of the plague, which then raged in that country.

The third consists of a letter wrote to our author by *Aliboux*, a physician at *Sens*; in which he remarks, that *John Desmarais*, a surgeon at the chastre in *Berry*, had perform'd the Cæsarean operation on his wife, who was afterwards naturally deliver'd of a daughter, who lived to be married.

The fourth is only a simple recital of a similar operation, communicated to *Laurence Colot*, a celebrated lithotomist at *Paris*, by *Pelion*, a physician of *Angiers*.

The fifth mentions another operation, attended with the same success as the preceding.

In the sixth, *Roussset* informs us, that in the hospital of *Chatillon*, he, along with *Dennis Armenaut*, a physician of *Gian*, saw a woman who on the right side of the abdomen had an hernia, accompanied with a very long cicatrix, and that having ask'd the woman what was the cause of that cicatrix, she told him it was the mark of an incision made to deliver her of a child, who was then alive, seven years old.

In the seventh observation, he relates, that in 1556, a woman, who had been in labour for four days

days, ask'd him what he thought of her condition, and what assistance could be afforded her. He advised the operation, which was performed with success. A year and an half after, her husband died, and she marrying a second time, was deliver'd of a daughter in the natural manner.

Some time before the publication of *Roussel's* book, *Ambrose Paré* published his *Surgery*, where, on account of a Cæsarean operation which had succeeded, we find a very keen invective against this operation.

Paré expresses himself in the following manner:*

“ I am surpriz'd, that authors should affirm that
 “ they have seen women in whom, for the extrac-
 “ tion of the foetus, an incision has been made in
 “ the abdomen, not only once, but several times;
 “ for such a thing, to me, appears absolutely im-
 “ possible, since in order to give passage to the in-
 “ fant, it is necessary to make a large wound in
 “ the epigastric muscles, and also in the uterus,
 “ which abounds with blood, so that the making
 “ so large an incision in it would produce a mortal
 “ hemorrhage. Besides, after the consolidation of
 “ the wound, the uterus would not dilate itself suf-
 “ ficiently to contain the infant. Other misfor-
 “ tunes may also arise from the Cæsarean operation,
 “ and the worst of these is the sudden death of the
 “ mother; so that I shall never advise an operation
 “ where there is so great danger, without any hu-
 “ man prospect of success. I have, however, been
 “ assured, that *Maitre Vincent*, a surgeon of *Hericy*,
 “ near *Fontainbleau*, perform'd this dangerous o-
 “ peration with happy success. Both this woman
 “ and the surgeon are still alive. As many persons
 “ of honour have related the fact to me, and even
 “ affirm'd that they saw him perform the opera-
 “ tion, and extract the infant, I cannot call their

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* *Treatise of generation*, Chap. 38.

“ veracity into question, but must look upon the
 “ thing as a true miracle of nature.

The operation mentioned by *Paré* is related, by *Schenkius*, in a more circumstantial manner. He says, that the surgeon who performed the operation did not live at *Hericy*, but at *Nemours*; that the woman's name was *Nicole Beranger*, and that the operation was performed in 1542. He adds, that the surgeon extracted a corrupted child from the uterus, and that the small hopes he had of preserving the mother, induced him to make only a few stitches of future in the skin, so that a ventral hernia supervened, which she was obliged to sustain by a truss. *Schenkius* afterwards says, that being in the same country, he saw the woman, who, ten years after the operation, was deliver'd of a daughter in the natural way, and afterwards of a son; and that she resided in a village call'd *Ivry*, where she practised midwifery.

It is evident, that *Paré* was not always so great an enemy to the Cæsarean operation, since in the first edition of *Roussel's* book, we find an approbation of *De Monanteuil*, royal professor of mathematics, and dean of the faculty of medicine in the university of *Paris*, in which that physician extols *Roussel's* work, and immediately below this approbation we read the following words: *I attest the above approbation.*

AMBROSE PARE,

In 1582, *Caspar Baubin* translated *Roussel's* book into *Latin**, and afterwards added to it a collection of observations, on the same operation, practised with success†. Most of these observations were sent to *Baubine*, by *Albosi* and *Saguyerus*. Others
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* This work is entitled, *The extraction of a live foetus, from a live mother, without endangering the life of either, or destroying the power of future conception*; wrote in French by Francis Roussel, and translated into Latin, and augmented with several histories, by Caspar Baubin. Basil, 1582.

† Under the title of *Appendix to Roussel*.

of them were extracted from the works of *Mauritius Cordæus*, and *Felix Platerus*. Several new observations are alſo communicated by *Rouſſet*, which we ſhall have occaſion to relate when ſpeaking of his *Latin* work on the Cæſarean operation.

Baubine in the end of his tranſlation ſays, that this operation was perform'd on a woman called *Elizabeth Turgois*, and that this woman was afterwards deliver'd of four children in the natural manner.

In 1590, *Rouſſet* published an apologetic dialogue on the Cæſarean operation.||

In this work our author relates all the objections made to him by his adverſaries, and repreſents them in a clear light, which gives him occaſion to illuſtrate and confirm his thoughts on the Cæſarean operation. He has thought it expedient to ſpecify the ſources whence he drew his medicinal knowledge, and ſpeaks of the *Literati* whoſe correſpondence he enjoyed. If his poem had been ſhorter, it might have procured him a diſtinguiſh'd rank among the beſt of our *Latin* poets, and the ſubject he treated would not have ſuffer'd by this brevity. He gives the antients all the juſtice they can expect from thoſe who have carefully read and conſider'd their works, but condemns the cowardly admiration of thoſe who, blindly reſpecting thoſe firſt maſters, neglect to uſe their knowledge, in order to acquire new diſcoveries. He even proves, by happy inventions unknown to thoſe great men, that they had not exhausted the whole of medicine; and 'tis highly probable, that had he lived in our days, his proofs would have been more compleat. Nothing appears more ſimple and ſolid than his reaſoning concerning the neceſſity of the Cæſarean operation. Nothing is more clear and accurate than the in-

structions he gives. He describes the operation with the greatest perspicuity, and in its favour relates the reasons most capable of inspiring courage to perform it. In a word, *Roussel*, possessed with all the confidence arising from a good cause, and of the sentiments of a man animated with a love to the public good, neglects nothing capable either of bringing this operation into repute, or encouraging surgeons to the performance of it.

This dialogue, at different times, drew upon him very severe criticisms from M. *Marchant*, a surgeon at *Paris*, who published a work against *Roussel*, under the title of a declamation.*

In the first part of this work, *Marchant* opposes the Cæsarean operation with the same argument *Paré* had used, and rejects *Roussel*'s first observation as false, and contrary to all the laws of the animal œconomy. He afterwards proceeds to the history of the woman of *Chatillon*, and shews that the cicatrix observ'd in her abdomen by M. *Roussel*, is not a sufficient proof that the Cæsarean operation had been perform'd on her. "How many cicatrixes, says he, do we see, of accidental wounds and abscesses of the abdomen, which might lay a foundation for making us believe that they are the consequences of the Cæsarian operation! Skilful surgeons, continues *Marchant*, always zealous for the publick good, and the relief of the afflicted, have eagerly embraced your new system, and wanted to be convinced of its truth. *Guillemeau* was the first who found an opportunity of performing the Cæsarian operation on a woman, who for some days had violent pains, without any hopes of being deliver'd. He operated in presence of *Ambrose Paré*, and several other surgeons of the *Hotel Dieu*, but the patient died

* In *Francisci Rossæti apologiam*, *Jacobi Marchant*, regis & *Parisiensis chirurgi* declamatio.

“ died five days after. *Paré, Carbonet, Brunet,*
“ and *Viart* were not more successful on several
“ occasions which presented.”

Marchant finishes the first part of his work by an enumeration of all the causes which may oppose delivery, without taking a view of numberless cases in which the natural delivery is absolutely impossible. He also pretends to shew, that a skilful man-midwife may surmount all these difficulties, without having recourse to the Cæsarean operation, which, according to him, has always very fatal consequences.

In the second part, *M. Marchant's* zeal carries him beyond all bounds. He not only opposes *Rouffet* by reasons, but also indulges his vivacity, and even proceeds to abusive language. This work ends with several satirical poems addressed to *Rouffet*†, in which we find a method of criticising, below a man of letters. It must be confessed, that in the works of *Marchant* there is a great deal of erudition, and an uncommon elegance of style, and they who have read the disputes now mentioned, must be convinced of the profound knowledge and skill of that surgeon.

At the end of these satires, we find a letter wrote to *Rouffet*, by *Guillemeau**, in which he enumerates the reasons which induced him to oppose the Cæsarean operation in his works. This letter is wrote in a strain more modest than that of *Marchant*, and we even perceive the character of a friend in it. *Guillemeau* endeavours to dissuade *Rouffet* from approving of a practice, which had succeeded so ill in the hands of the ablest surgeons of his time. *Rouffet*, however, convinced of the goodness

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† The first is entitled, *In Francisci Rosseti librum de Cæsareo partu Jacobi Marchant carmen*. The second, *ejusdem pro regio chirurgorum Parisiensium collegio*. The third, *Tumulus Cæsarei partus*. And the fourth, *Jacobi Marchant carmen in Franc. Rosseti osentum*.

* *Jacob. Guillemeus, regis & Paris. chirurgus, Franc. Rosseto salutem dat.*

ness of his cause, the same year, answer'd *Marchant* with a great deal of learning §, and employ'd observation as the surest means of refuting his adversaries. A proof of what I now advance is found in reading an observation taken from the last *Latin* edition of *Rouffet*, which ends with these words: *In the year 1573, I diligently observed these things, and mark'd them in my adversaria.*

It is highly probable that these declamations of *Marchant*, and some instances of bad success, which then attended the Cæsarean operation, hinder'd the practice of it from being continued; for *Guillemeau* says expressly in his works ||, “ This determined
“ *Paré* to desist from this operation, as well as the
“ college of surgeons; and the more rational part
“ of the faculty of physicians of *Paris*, in the con-
“ troversy agitated by the deceas'd M. *Marchant*,
“ in the declamations he made, when he was crea-
“ ted master surgeon of *Paris*.”

From these disputes, we see that the facts declare both for and against the operation. Those related by *Rouffet* sufficiently evince that it may be performed with success, and that it has in reality succeeded. But those advanced by the adversaries of *Rouffet* prove, at least, that this operation cannot be performed without danger; which is, no doubt, the reason why it has not been classed among the operations generally adopted by surgery. In a word, it is not sufficient that some observations evince the success of so terrible an operation. It is necessary that a more regular tract of experience should ascertain to what degree this operation is safe or dangerous, in order to admit or reject it. For this reason, *Rouffet*, in order the more effectually to shew the advantages of the Cæsarean operation, and to encourage those who were shaken by the disputes I have

§ *Francisci Rossæti responsio ad Jacobi Marchant declamationes,*
|| *Livre quatrieme de sa chirurgie, chap. 28,*

have mention'd, conſiderably extended his reſearches on this operation; and, in 1590, publiſhed a *Latin* edition of his book, much larger than the former†. Beſides ſome new and very ſolid reaſons, added to thoſe already ſpecified, he gives farther examples of its ſucceſs, which we ſhall here relate.

The firſt is the hiſtory of a woman of the village of *Ambedoye*, near *St Briſſon*, on whom the Cæſarean operation was performed in 1576. The infant extracted was dead and corrupted. Some time after the woman became pregnant, and brought forth a living child in the natural manner.

The ſecond is taken from a letter wrote to *Rouſſet* by *Vertunianus*, a phyſician at *Poitiers*, in which he tells him that a woman in the neighbourhood of that town was delivered by the Cæſarean operation, and perfectly cured.

In the third, we have an account of a woman, whoſe infant had been dead in the uterus for a long time, and who could not be deliver'd by the natural methods, on account of the difficulty of laying hold of the infant, though the crotchet, and other means employ'd on ſimilar occaſions, had been uſed. As this woman was in a deſperate condition, the ſurgeons determined to perform the Cæſarean operation. As ſoon as the uterus was open'd, a large quantity of fetid matter was diſcharged. The mother felt an intense pain during the extraction of the foetus, becauſe the aperture in the muſcles and uterus was not ſufficient for its paſſage. No accident, however, happened, the hemorrhage was moderate, a great deal of purulent matter was voided with the lochia, and five weeks after the woman was in a condition to go abroad. After this operation ſhe was happily deliver'd of five children.

In the fourth we find that, on the day of Pentecoſt 1580, this operation was performed with ſucceſs on

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† *Cæſarei partus aſſertio hiſtoriolog.* Paris, 1590.

a woman of the valley of *Aillant*, by a surgeon call'd *Jacotin*, who liv'd at the town of *St Maurice Tirau-reille*. *Roussel* says that he afterwards saw the woman cured; that this surgeon had told him he had used the same means on two other occasions; and that he had been happy enough to succeed.

The fifth and last consists in the history of a similar operation performed with success, in 1582, on the wife of a labourer in the village of *Winville*. *Roussel* adds, that the operator was in a condition which might have render'd the operation unsafe; whence he observes that, if it has succeeded in these circumstances, its success must be much more certain, when it is performed by a surgeon who operates with all the skill and dexterity which so important an operation requires. “ This woman, “ says *Roussel*, was cut by *John Luca*, at that time “ pretty much intoxicated with liquor; and if the “ operation succeeded with him when drunk, what “ may not he expect who performs it when sober, “ according to the justest rules of his art ?”

Scipio Mercuri, a surgeon at *Rome*, in 1604, published a Dissertation on Deliveries*, in which he gives observations on the happy success of the Cæsarean operation, and orders it never to be neglected in cases where delivery is otherwise impossible. This author relates that, being near *Toulouse*, in a town called *Chateauneuf*, he saw two women on whom the Cæsarean operation had been performed, and that one of them afterwards had children, and shew'd him a cicatrix half a foot long in her abdomen. He afterwards adds, in an hyperbolical strain, that, in his time, this operation was as common in *France* as a venesection is in *Italy* for headaches.

The observations of *Schenkius* mention a letter of *Albosi*, in which he says that he had the care of a woman, on whom the Cæsarean operation had been per-

* This Dissertation is entitled *La Commare Orucoglitrice*, printed at *Venice*.

performed, and that the cure was happily completed.

According to the relation of *Roonbuisen*, a surgeon of *Amsterdam*†, *Sonnius*, a physician of *Bruges*, performed this operation seven times on his own wife.

Olaus Rudrekius, a celebrated physician of *Sweden*, preserved the life of his spouse by this operation, which he performed himself||.

Thomas Bartholin relates§ that, during his stay in *Paris*, he knew a surgeon's wife, on whom this operation had been performed five times.

In a Treatise of *Theophilus Renaud* on the Cæsarean operation, we find three instances of this operation performed with success‡.

In the first this author relates the testimony of a celebrated surgeon, called *Lewis Panthot*, who affirms, that, in the month of *April* 1627, a woman of the village of *Messemy*, near *Lyons*, after having for several days suffer'd cruel pains, without any possibility of delivery, was at last happily deliver'd by the Cæsarean operation, and that her child was baptized.

In the second, *Theophilus Renaud* says that, at *La Fleche*, a Jesuit saw a woman who affirm'd that this operation had been thrice performed on her; and that the fact could not be called in question, because the Jesuit also knew the surgeon who had performed these operations.

The third is an extract from a letter wrote by *M. Pellaire*, a physician of *Maurienne*, in *Savoy*, in which we find that this operation was six times performed with success on a woman of the town of *Aucois*.

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† In libro observ. de morb. mul. Cap. 1.

|| Vid. colloquia menstrua Tenzelii Germanico idiomate quondam edita sub titulo Monathliche Unterredungen, Ann. 1689.

§ In bist. anat. cent. 2. bist. 8.

‡ De ortu infantium contra naturam per sectionem Cæsaream, autore Theoph. Renaudo societ. jesu theolog. Lugd. 1637.

In 1692 M. *Saviard* inserted, in the *Journal des Sçavans*, the relation of the manner in which, in the Hotel Dieu, he dressed a ventral hernia, which happen'd to a woman of *Chateau-Thierry*, in consequence of an incision made in her abdomen fourteen years before, in order to extract an infant, of which she could not be deliver'd in the natural way. This woman died, and her body being open'd in presence of several surgeons, a cicatrix was found in the uterus, which possessed its whole thickness, and corresponded to that of the teguments.

Saviard added to this relation, that the surgeon who had performed this operation, was obliged to make his escape, on account of the bad usage with which the woman's friends threaten'd him. But *Saviard* was ignorant of the true motive of his flight; for in the *Journal* for the month of *June* 1693, we read that his flight was only owing to this, that being a *Calvinist*, he thought it proper seasonably to withdraw (as did many other Protestants) from the persecutions which were beginning to be exercised against the protestant religion.

In the same *Journal* we find two observations, communicated by M. *Jobert*, physician in the town of *Chateau-Thierry*, concerning two Cæsarean operations performed in the same town on the same woman, twenty months apart, notwithstanding which, the woman was perfectly cured. M. *Jobert* adds, that the infant, extracted by the first incision, was still alive, and had on his chin the cicatrix of a small wound, made in the inferior jaw by the instrument used by the surgeon in performing the operation.

In 1593, a woman remaining long under her pains, the midwife was obliged, for her relief, to procure a forced delivery. This practice was succeeded by very violent symptoms; for soon after there superven'd an ulcer in the vagina, and an incontinence of urine. This woman had recourse to
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quacks for relief, but their management proved very fatal to her, for they not only failed of a cure, but there alſo appeared in the vagina, a tumor of ſo conſiderable a bulk as to fill almoſt its whole cavity. Notwithſtanding this misfortune, the woman became pregnant, and during her labour, had reſource to *Lankiſch*, a phyſician of *Wittaw*, a town of the upper *Lufatia* in *Germany*. This phyſician adviſed the Cæſarean operation, which was perform'd with ſucceſs for the mother.*

Vaterus† makes mention of a ſimilar operation, which had equally happy effects. The woman on whom it was performed had the whole internal ſurface of the vagina ſo full of calloſities, in conſequence of an ulcer in that part, that it was with difficulty it admitted the point of one's little finger.

In 1707, *Ruleau*, a ſurgeon of *Xaintes*, publiſhed a diſſertation on the poſſibility and neceſſity of the Cæſarean operation, in which he muſters up almoſt all the reasonings of *Rouſſet*, to prove how neceſſary this operation is. In that work he alſo mentions a Cæſarean operation performed by himſelf, which ſucceeded very happily. The woman ſpoke of in this obſervation had for five days ſuffered the moſt cruel pains, without any hopes of relief. *M. Ruleau*, on touching the woman, perceived that there was ſo bad a conformation of the bones of the pelvis, that it was impoſſible to introduce the two fingers, in order to facilitate the delivery. After mature deliberation, he reſolv'd to perform the Cæſarean operation; there was no hemorrhage, the lochia were diſcharged from the wound, and the patient was happily cured.

M. de la Motte, in his midwifery, relates a ſimilar obſervation.

A poor woman of *Infreville*, a village near *Vallognes*,

* *Acta erudit. Lipſ. ann. 1693.*

† In diſſert. de partu Cæſareo, *Vitebergæ edita anno 1695.*

lognes, for three days had child-bed pains, and the infant presented its arm. The midwife who undertook the delivery tore off the child's arm. A surgeon of *Pont-l' Abbé* being called, and finding an impossibility of delivering her, performed the Cæsarean operation, extracted a dead child, and made some stitches of a future in the skin of the abdomen. The cure of this poor woman was, in a great measure, abandoned to nature, for the surgeon saw her very rarely, and only left with her husband some remedies to dress her with. A putrefaction happened in the wound, which was, no doubt, owing to the want of a proper care in dressing it, notwithstanding which circumstance, the patient was cured.

The academy of surgery, which always takes wife precautions to ascertain facts, in 1739, desired a woman to come from *Guise*, on whom the Cæsarean operation had been perform'd, and whose history is as follows:

Magdalen Gourdain, wife of *Charles Megret*, near *Guise*, having been three days in labour, and the midwife not being able to deliver her, called the surgeon of the place to her relief. He made all the necessary attempts to deliver the woman, but without any success. The patient perceiving that there was no other expedient left than a forced delivery, and seeing the danger to which she and her child were exposed, desired the surgeon to open her abdomen*. The surgeon surprized at such a request, and having never heard of this method of delivery, refused to perform the operation; but being importuned by the intreaties of the husband and the wife, he

* This woman related the present observation to me. Upon asking her why she desired the surgeon to open her abdomen, she answer'd ingenuously, that she had heard that women of quality were deliver'd in that manner. I perceived no fault in the conformation, which could have determined the surgeon to the operation.

he at last resolv'd to do it. He first of all made a longitudinal incision in the skin and muscles, about three finger-breadths from the navel. As soon as this incision was made, the intestines presented themselves, but the surgeon called the husband to secure them, by putting his hand upon them. He then made an incision in the uterus, sufficient for the introduction of his finger; then perceiving the motion of the child, he with his scissars enlarged the incision of the uterus, extracted the child, and deliver'd the woman. The wounds of the skin and muscles were re-united by some stitches of future. An ointment of fresh butter and chimney soot was afterwards applied to the abdomen. Three days after the operation, the futures broke, and the surgeon wanted to substitute others in their room, but the patient opposed it, because she had felt a great deal of pain from the former, which were made with a large sewing needle. The lochia were discharged from the wound, which appeared livid for several days, but afterwards assuming a reddish colour, it was entirely cicatrised at the end of three weeks. This woman was in no danger during the whole of her disorder, and nourished the child herself. After this operation, she bore four children in the natural manner, three of whom came dead into the world, but the fourth was alive when this woman came to *Paris*.

This fact cannot be called in question, since the surgeon who performed the operation, his son, the curate, and several inhabitants of the place, have given certificates attesting its truth.

M. de la Peyronie has had occasion to satisfy himself with respect to the success of the Cæsarean operation, as we may see by the following observations.

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A woman of twenty-five years of age, who the first time had been happily delivered without any assistance, not finding it possible to be delivered the second time, after a long labour, and the expiration of her full time, sent for M. *L'Amiral*, the father, a surgeon of *Marigny*, who open'd the left lateral part of her hypogastrium, and extracted a child. The mother was cured in fifteen days by a very simple dressing, and the child is still alive.

II. Observation by
M. de la Peyronie.

Some years after this operation, the same woman being pregnant, and arrived at her full time, her pains were very intense, long, and ineffectual; upon which she had recourse to the same surgeon to deliver her, which he successfully did by the Cæsarean operation. In a journey which M. de la Peyronie made to *Marigny* fourteen years ago, M. *L'Amiral* shew'd him this woman, who then had a fresh cicatrix in her abdomen, because the operation had been performed but a month before.

III. Observation
by the same au-
thor.

M. *Urban*, a physician and surgeon to the Abbot of *St Hubert*, in *Ardennes*, has communicated the following observations to the academy of surgery.

IV. Observation,
by M. *Urban*.

There is, says M. *Urban*, at *Burc*, about two leagues from the parish of *Icy*, a surgeon called *De Thise*, who, within these eight or ten years, has with success performed the Cæsarean operation on three women. These facts are incontestable; for besides that they are known to all the inhabitants of that country, they have been attested by persons of the greatest veracity and candour. The first of these women living in *Luxemburg*, was perfectly cured, and afterwards bore children. The second, living in *Rochefort*, in the country of *Liege*, died of a colic two years after the operation. The third lives in the dutchy of *Bouillon*; the operation was performed

ed on her about a year and an half ago, and the cure was tedious, because a violent cough supervened, and broke the stitches of the suture several times. Messrs *Oconner* and *Cosquet*, a physician and surgeon of the hospital of *Givet*, below *Charlemont*, saw the first of these women. *M. Feriol*, a member of our academy, being in the country of *Liege*, had occasion to see and examine the woman in the dutchy of *Luxemburg*. He observes, in a letter addressed to *M. Houstet*, and dated *September 7, 1741*, "that eight months after the operation, " this woman was seized with a ventral hernia of " the bulk and form of a hat; that this tumor " possessed the whole umbilical region; that the " infant lived three months and an half; and that " the patient was cured in less than three weeks."

M. Brou, surgeon of *Beuville le Comte*, not being able to deliver *Mary le Roche*, wife of *John Sebastian Boudet*, a taver-
V. Observation by
M. de la Faye.
ner in the said place, performed the Cæsarean operation on her, in presence of her husband, and the curate of the town. From the incision he extracted a daughter, now eighteen years of age. *M. Brou* made in the skin and muscles several stitches of suture, which broke some days after; notwithstanding which the wound was soon and happily cicatrised. Some time after, *M. de la Faye* being in the country, wanted to see this woman, and found all along the muscoli recti of the right side, a very large cicatrix, which had given occasion to a considerable hernia. He remarks, that this hernia was thirteen inches and four lines in length, and ten inches five lines in breadth; that the cicatrix was eight inches two lines in length, and that the distance between the navel and cicatrix was five inches.

M. Noyer, a surgeon of the village of *Ifferteau*, in the diocese of *Clermont* in *Auvergne*, has this
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year sent to the academy of surgery, a relation of the Cæsarean operation, which he performed with success on the 17th of *April* 1726, on *Mary Espirat*, a woman of thirty-five years of age, and wife to *Peter Moulebeaus*, an inhabitant of the village of *Bourzis*, in the parish of *Ifferteau*. He by incision extracted a child, who had been dead for some days. He made several stitches of suture, and seventeen days after, the cicatrix was form'd. This woman afterwards became pregnant, and her pains were not only very intense, but also continued a long time. She sent for M. *Noyer* to perform the operation upon her, but he being absent could afford her no relief, so that she died in her pains without being deliver'd. This woman had been three times happily delivered, before the operation was performed. To this relation are joined the certificates of the curate of the parish, of three of the inhabitants of the said place, of M. *le Comte de Montmorin*, of his almoner, and of M. *Chamerlat*, a physician who lives near the village of *Ifferteau*.

In the history of the Royal Academy of Sciences for the year 1730, we find an account of a Cæsarean operation performed at the *Burg de la Tour de Tresme*, in the bailliage of *Gruyere*, in the canton of *Fribourg*.

“ In 1723, Mrs *Flandrin*, a midwife in the town
 “ of *Bull*, was called to deliver *Margaret Frances*,
 “ a woman of forty-eight years of age, and big
 “ of her first child. The head of the child pre-
 “ sented to the passage, which was too narrow.
 “ The midwife, having in vain made all possible at-
 “ tempts for a day and a night, consulted M. *Mi-*
 “ *chel*, who ordered every thing that had a ten-
 “ dency to produce throws, and fortify the mother,
 “ but nothing succeeded. On the fourth day of
 “ this cruel labour, M. *Michel* was of opinion that
 “ the midwife should extract the infant by the
 “ crotchet,

“ crotchet, or if she could not succeed in that attempt, that she should put the child back, in order to extract it by piece-meal. These terrible expedients had sometimes succeeded with her on other occasions, but on this she tried them without success. At last nothing remain’d but the most terrible of all, the Cæsarean operation, which was resolved on the seventh day. The midwife performed it with so much dexterity and courage, that the patient was deliver’d without any accidents, and two months after went to thank M. *Michel*, and has ever since enjoy’d a perfect state of health.”

Helvetius, who communicated this observation to the Academy of Sciences, produced at the same time a letter from M. *Michel*, and a testimony of the persons who saw it, taken before public notaries.

Margaret de Storbeaux, wife of M. *de Presseux*, a physician of the town of *Spa*, became pregnant for the first time, at the age of thirty-five years. This gentlewoman, during the whole of her gestation, had no other accident except a fall, some days before her time. After this fall, she made water very often, and discharged but little at a time. Upon the commencement of her pains a midwife of the town was call’d, who said to M. *de Presseux* that the infant presented well, and that there was reason to hope for a happy delivery. The pains continued for two hours, and procured a discharge of the waters. M. *de Presseux*, seeing that his wife suffer’d a great deal, and that the delivery was not obtain’d, examined his wife’s state himself, and was surpris’d to find that the child presented its posterior parts. He forthwith sent to *Liege*, to desire M. *de Blierre*, a surgeon and man-midwife of that town, to come speedily to his wife’s assistance. This surgeon came next day, and laboured eighteen hours, in conjunction with the husband,

VII. Observation,
by M. *Presseux*.

band, to return the child, which was then dead. As it was impossible for them to change the situation of the infant, and as the mother's life was greatly to be despair'd of, M. *de Blierre* propos'd the Cæsarean operation, as the only relief which could be afforded her. The husband at first oppos'd the proposal, and obtest'd him rather to obtain a forc'd delivery. M. *de Blierre* answer'd that he could not do it, because he had brought no instrument fit for that purpose along with him. As the patient was extremely weak, and in the greatest danger, M. *Presseux* consented to the operation. The surgeon first made a longitudinal incision in the skin, the muscles, and the peritonæum. The bladder, which was extremely distended by the retain'd urine, in a manner cover'd the uterus. As the bulk of the bladder hinder'd M. *Blierre* from opening the uterus easily, in order to extract the infant, he made a puncture in the lateral part of the bottom of the bladder, by which means he evacuated all the urine it contain'd. Then the uterus being laid perfectly bare, he open'd it, extracted the infant, and made some stitches of future in the skin and muscles. This operation was succeeded by no hemorrhage; the lochia were discharged from the vagina, but were less in quantity than usual, and mix'd with pus for the first eight days. Some days after the operation a fever superven'd, but was dissipated by means of the regimen and medicines proper on such occasions. At the end of three weeks the surgeon cut the stitches of future, on which the fæces were discharged from that part of the wound which was not entirely closed. To this place he applied a remedy capable of hastening the cicatrix, which produced a very happy effect; for a month after the operation, the wound was entirely cicatrised. The patient behav'd with a great deal of courage, and would not so much as allow herself to be held; only she complain'd

plain'd of the slowness of the operation, by telling the surgeon, now and then, when he was cutting the skin and muscles, that *his knife did not cut well*. This operation was performed on the 24th of *December* 1738. In 1740 this gentlewoman was, in the natural manner, happily deliver'd of a daughter, who is at present in good health, as well as the mother.

So uniform a recital of so many similar facts would perhaps prove tedious and irksome, if I was to carry it farther. However, I hope the reader will pardon me, if I mention one which strikes me more than all the rest, because I was eye-witness to it.

In the month of *April*, 1740, *M. Soumain* was sent for to the *Rue Guenegaud*, to see Mrs *Desmoulins*, a woman of thirty-seven years of age, and seven months gone with child. At his first visit the woman seem'd very anxious about the event of impregnation, and not without reason; for she was conscious of the bad conformation of all the parts of her body, and this bad conformation had begun in her infancy*. The promise which *M. Soumain* made to see her after, and to deliver her, seem'd to render her more easy. In the different visits which this surgeon paid her, he had an opportunity of discovering the faults of the conformation of the parts. On examining her carefully, he found that all her bones had a preternatural figure, and especially the inferior part of the spine and the os pubis, which were only two inches distant from each other. This attentive examination made *M. Soumain* sensible how troublesome the consequences of this impregnation might prove, and induced him to think seriously on the means he should employ to preserve, if possible, both the mother and child.

VIII. Observation, by *M. Soumain*.

M m 2

On

* This woman was only three foot and an inch high,

On *Wednesday* the 7th of *June* her pains began, the membranes broke, and the waters were discharged. M. *Soumain* being call'd, and having examined the state of the patient, found no disposition to delivery. From the *Wednesday* to the *Saturday* following things remained in the same state, the pains and the discharge of the waters produc'd only a small dilatation in the orifice of the uterus; and this dilatation was of no other use than to convince M. *Soumain* of the impossibility of the delivery.

As soon as he was certain that the narrowness and irregular figure of the pelvis was an invincible obstacle to the delivery, he resolved to perform the Cæsarean operation, every other method appearing to him useless in the present case. Before he proceeded to the operation, he called into consultation Mess. *Bourgeois*, *Puzos*, *Souchay*, *Verdier*, *Gervais*, *Gregoire*, *Iard*, *Chauvin*, and *La Fitte*. These gentlemen touch'd the patient, and being convinced of the impossibility of a delivery, were of M. *Soumain's* opinion.

They laid the patient on the edge of the bed, with her head and breast a little more elevated than the rest of her body. As there was a scirrhus hardness in the epiploon on the right side, the left side was made choice of for the incision; and so much the rather, because this side was larger and more elevated by the oblique position of the child, and because this elevation was precisely in the place where it was proper to make the aperture. M. *Soumain* made an incision in the skin, the fat, the muscles, and the peritonæum. As soon as this incision was made, a portion of the intestines presented itself, which being retain'd, and cover'd by the hand of one of the gentlemen called into consultation, the uterus was forthwith perceived. As the waters were totally discharged during the labour, and as the uterus was in a manner adherent to the membranes,

branes, *M. Soumain* made the aperture with a great deal of precaution, for fear of wounding the child. In the incision he had made, he perceived a white speck, whence some drops of a whitish liquor were discharged ; which circumstance convinced him that he had cut thro' the whole thickness of the uterus, and probably thro' the membranes which contain'd the infant. He made in the uterus and membranes an incision, almost equal to that which he had made in the containing parts of the abdomen. Then the infant appearing plainly, presented the inferior part of the back, and the superior part of the hips. *M. Soumain* used a great many precautions to extract the infant, because the lips of the wound in the uterus pressed so close on these parts, that he could hardly introduce his fingers to lay hold of the child. As soon as the extraction was made, he tied the navel-string, and, with *M. Puzos's* assistance, deliver'd the woman. *M. Soumain* return'd the portion of the intestine I have mention'd into the abdomen, and after uniting the lips of the wound, made some stitches of suture in the muscles and skin, and applied a proper dressing. It is to be observed that the hemorrhage which succeeded the disengagement of the placenta was not considerable ; for, upon examining the sheets of the bed, it was found that the quantity of blood the patient had lost during the operation, did not exceed the quantity lost by many women in the most natural and happy deliveries.

Some days after the operation, a suppuration was established, the pus became laudable, the lochia were evacuated from the wound, and on the forty-seventh day the patient was able to go to church. The child was twenty inches long, lived ten days, and, as we are inform'd, only died for want of some assistance which the nurse neglected to procure.

I shall not here mention a great many authors who have wrote in favour of the Cæsarean operati-

on, because the reasons they alledge for its support are in reality no others than those of *Roussel*. I have made it my principal business to find out the facts which are most decisive, with respect to this operation; and, in practical authors, I have found a number sufficient to establish its safety. This does not hold true in the second part of this Memoir, because all the authors who have treated of the Cæsa-rean operation, have said but very little of the cases in which it is necessary to perform it. It was a detail of these neglected cases that I had principally in view, when I began to treat of this subject; and I shall use my utmost endeavours, in another Memoir, to handle this second part in a satisfactory manner.

ME;

MEMOIR XXI. By M. FOUBERT.

A new Method of extracting the Stone from the Bladder.

Lithotomy, or the operation of cutting for the stone, is performed either in the body of the bladder, without touching the urethra and the neck, or on the urethra and neck. That on the body of the bladder is performed on its inferior part, between the neck and the urethra, or on the superior part, which is its bottom. That performed on the inferior part of the body of the bladder is what we propose to describe in this Memoir. But we shall first consider the others, in order the better to know wherein these several operations differ from each other.

Of the different methods of cutting.

That performed on the bottom of the bladder is called the *high apparatus*. In order to perform it, the bladder is to be filled with tepid water, till it forms a tumor above the pubes. This tumor indicates where the surgeon is to open the bladder, in order to extract the stone.

This operation is but very rarely perform'd, for several reasons; the first of which is, because the injection necessary to be made in order to fill the bladder, is very painful; and because the patients, by their shrieks, and by the contraction of the abdomen, discharge this injection.

The second is, because, in this operation, the aperture is not placed so favourably as in the others, to procure a discharge of the suppuration, which must happen when the bladder is injur'd.

The third is, because the urine, which, instead of being discharged thro' the natural passage, during the whole course of the cure, is evacuated by the

wound, often infiltrates itself into the cellular texture, and produces gangrenous suppurations.

The fourth is, because, when there are several small stones, or one brittle stone, which breaks into several fragments in the operation, it is very difficult to extract those small stones or fragments, while neither the urine nor injections can carry them off. There is only one case in which this operation seems expedient, which is, when the stone is of such a bulk that it appears impossible to extract it by the other methods.

This operation labours under a fifth inconvenience, which is, that when the bladder is injured, contracted, and indurated, it cannot receive a quantity of liquor sufficient to distend it enough for the performance of the operation; for I am of opinion that it is impossible that the bladder should forthwith yield to the effort of such an injection. This inconvenience is not, however, unavoidable; since I have observed that every bladder yields by little and little, and is extended as much as is necessary, by taking the measures I shall afterwards mention.

The operations made in the urethra and neck of the bladder, are performed in the narrowest part of the space comprehended in the angle form'd by the bones of the pubes; and these operations cannot, as is well known, open a passage sufficient for the extraction of considerably large stones. It must necessarily happen that the stone itself, and the instruments used for its extraction, must dilate or enlarge the aperture, by tearing these parts. Almost all the surgeons have, however, confined themselves to this operation.

Before the discovery of the *great apparatus*, that distinguished by the epithet *small* was only practised. This operation has its peculiar advantages, as we shall afterwards observe; but it can only be performed

form'd on children, or when the stone is engaged in the urethra, or in the neck of the bladder.

As *Celsus* is the first author who has given an exact description of it, we shall here relate his account of it, that we may know precisely wherein this antient method consists.

A robust and skilful man, says that author*, is to sit on a high seat, and having laid the child on his back, he is first of all to place its thighs on his knees; then folding its legs, he separates them carefully, places his hands on its hams, extends them with all his strength, and secures them in this situation. If, however, the patient is too vigorous to be managed by one person, two strong men are to sit on two chairs, so fixed together that they cannot be separated. Then the patient is to be plac'd in the manner now mentioned, on the knees of these two men, one of whom separates the left and the other the right leg, according as they sit, while he himself strongly lays hold of his hams.

But whether one or two men hold the patient, his shoulders must be supported by their breasts,

Homo praevalens & peritus in sedili alto confidit, supinumque eum & aversum, super genua sua coxis ejus collocatis, comprehendit; reductisque ejus cruribus, ipsum quoque jubet, manibus ad suos poplites datis, eos, quam maxime possit, attrahere; simulque ipse sic eos continet. Quod si robustius corpus ejus est qui curatur, duobus sedilibus junctis, duo valentes insidunt; quorum & sedilia & interiora crura inter se deligantur, ne diduci possint. Tum is super duorum genua eodem modo collocatur; atque alter, pro ut consedit, sinistrum crus ejus, alter dextrum simulque ipse poplites suos attrahit.

Sive autem unus, sive duo continent, super humeros ejus suis pectoribus incumbunt. Ex quibus
occurrit,

* Lib. 7. cap. 26.

breasts, which is the reason that the part between the ilia above the pubes being tense without wrinkles, and so, the bladder then possessing a smaller space, we can lay hold of the stone with greater ease. Besides, there are to be two strong men, one on the right and another on the left side, to support the persons who hold the patient, and keep them from slipping. Then the operator, after having pared his nails close, introduces into the patient's anus, as softly as possible, the fore and middle fingers of his left hand dipt in oil, while he gently applies the fingers of the right hand to the hypogastric region, lest his fingers happening to act violently on the stone, the bladder should be wounded by that means. But we are not on this occasion to proceed hastily, as in most other operations. We must make it our principal business to operate with safety, for wounds of the bladder produce convulsions,

evenit, ut inter ilia sinus super pubem sine ullis rugis sit extentus, & in angustum compulsa vesica, facilius calculus capi possit. Præter hæc etiamnum à lateribus duo valentes objiciuntur, qui circumstantes, labare vel unum vel duos, qui puerum continent, non sinunt. Medicus deinde, diligenter unguibus circumcisis, sinistræ manus duos digitos, indicem & medium, leniter prius unctos oleo, simul in anum ejus demittit, dextræque digitos super ipsum abdomen leniter imponit, ne, si utrinque digiti circa calculum vehementer concurrerint, vesicam lædat. Neque vero festinanter in hac re, ut in plerisque, agendum est; sed ita ut quam maxime id tuto fiat; nam læsa vesica nervorum distentiones cum periculo mortis excitat. Ac primum circa cervicem quæritur calculus, ubi repertus, minore negotio expellitur. Et ideo dixi, ne curandum quidem, nisi cum hoc indicis suis cognitum est. Si vero aut ibi non fuit, aut recessit retro, digiti ad ultimam

fions, and a danger of death. We must first seek for the stone near the neck of the bladder, and when it is found here, the operation is less laborious. This induced me to say, that we must not proceed to the operation till we were certain that the stone is thus situated. But if the stone is not near the neck of the bladder, or situated deeper, we must convey the fingers of the left hand to the bottom of the bladder, while the right hand continues to press on the hypogastrium till the stone is arrived there. When the stone is once found, which it certainly must be, by following this method, we must make it descend with so much the more precaution, as it is smaller or greater, smoother or rougher, lest it should escape from our fingers, and lay a foundation for agitating the bladder too much. For this reason, the right hand, placed beyond the stone, always opposes its return backwards, while the two fingers of the left hand push it downwards till it arrive at the neck of the bladder, towards which, if the stone is of an oblong figure, it ought to be pushed, in such a manner as that it may come away by one of its extremities;

timam vesicam dantur ; paulatimque dextra quoque manus ejus ultra translata subsequitur. Atque ubi repertus est calculus (qui necesse est in manus incidat) eo curiosius deducitur, quo minor leviorque est, ne effugiat, id, est ne sæpius agitanda vesica sit. Ergo ultra calculum dextra semper manus ei se opponit ; sinistra eum compellit deorsum digitis, donec ad cervicem pervenitur ; in quam, si oblongus est, sic compellendus est, ut ne pronus exeat : si planus, sic, ut transversus sit : si quadratus, ut duobus angulis sedeat : si altera parte plenior, sic, ut prius ea qua tenuior sit, evadat. In rotundo nihil interesse, ex ipsa figura patet ; nisi si levior altera parte est, ut ea antecedit.

ties; if it is flat, in such a manner as that it may be discharg'd transversely; if it is square, in such a manner as that it may be placed on two of its angles; if it is larger at one end than the other, the smallest extremity ought to come first. As for a round stone, it is of no importance how it presents, tho' if it is smooth on one side and rough on the other, the smooth side ought to come first.

When the stone is descended to the neck of the bladder, we must, near the anus, make an incision in the skin in form of a crescent, which must penetrate to the neck of the bladder, and whose extremities must be in some measure directed towards the thighs. Then we must, in the narrowest part of this aperture under the skin, make a second transverse incision, which must open the neck of the bladder, till the urinary passage is so much dilated, that the largeness of the wound may surpass the bulk of the stone; for they who, for fear of that species of fistula which the Greeks call *ὀπισθοκυστική*, make only a small aperture, fall, and even with more danger, into the inconvenience they pretend to avoid; because in this case,

Cum jam eo venit, ut super vesicæ cervicem sit, juxta anum incidi cutis plaga lunata usque ad cervicem vesicæ debet, cornubus ad coxas spectantibus paululum: deinde ea parte, qua strictior ima plaga est, etiamnum sub cute, altera transversa plaga facienda est, qua cervix aperiatur; donec urinæ iter pateat sic, ut plaga paulo major quam calculus sit. Nam qui metu fistulæ (quam illo loco ὀπισθοκυστική Græci vocant) parum patefaciunt, cum majore periculo eodem revolvuntur: quia calculus iter, cum vi promittitur, facit nisi accipit; idque etiam perniciosius est, si figura quoque calculi, vel asperitudo aliquid eo contulit. Ex quo & sanguinis profusio, & dissectionio nervorum fieri potest. Quæ si quis evasit, multo tamen potentiorē fist-

case, the stone being extracted with violence, does itself enlarge the passage which had not

been made sufficient for it; and this is still so much the more to be dreaded, according to the figure and asperities of the stone. This circumstance may produce hemorrhages, twitchings, and convulsions; and if the patient is so happy as to escape death, there remains a fistula, which is rendered much more considerable by the dilaceration of the neck of the bladder, than if that part had been opened by incision.

When the aperture is once made, we discover the stone, whose body and figure are often very different. For this reason, if it is small, we push it to one side with the fingers, while we extract it from the other. But if it is of a considerable bulk, we introduce a crotchet, made for that purpose, above its superior part. This crotchet is slender at its extremity, and shaped like a kind of semi-circle, flat and smooth on the side which touches the edges of the wound, and rough on that which lays hold of the stone. This instrument ought to be rather long than short, because a short crotchet has

not

fistulam habiturus est rupta cervice, quam habuisset incisa.

Cum via patefacta est, in conspectum calculus venit, in cujus corpore multum discrimen est. Ideo si exiguus est, digitis ab altera parte propelli, ab altera protrahi potest. Si major, injiciendus à superiore ei parte uncus est, ejus rei causa factus. Is est ad extremum tenuis, in semi-circuli speciem retusæ latitudinis; ab exteriori parte lævis, qua corpori jungitur, ab interiori asper, qua calculum attingit. Isque longior potius esse debet, nam brevior extrahendi vim non habet. Ubi injectus est, in utrumque latus inclinandus est, ut appareat calculus, & teneatur; quia si apprehensus est, ille simul inclinatur. Idque

eo

not the same force to extract the stone as soon as it is introduced. We must also move it from right to left, in order the better to lay hold of the stone and secure it; because at the same time we lay hold of the stone,

we must incline the crotchet. It is necessary to use all these precautions, lest in attempting to extract the crotchet, the stone should escape inwards, and the instrument act too violently against the lips of the wound, which would produce the inconveniences I have mentioned.

When we are certain that the stone is sufficiently secured, we must make three different motions almost at the same time, two upon the sides, and one forwards; but this last must be made gently, so that the stone may be first brought forward by little and little; then we are to raise the extremity of the crotchet, that the instrument may be more engaged under the stone, and bring it away with the greater ease. But if it

should happen that we cannot commodiously lay hold of the superior part of the stone, we must take hold of the lateral part; and this is the most simple and natural method of cure.

eo nomine opus est, ne, cum adduci uncus cœperit, calculus intus effugiat, hic in oram vulneris incidat, eamque convulneret, in qua re quod periculum esset, jam supra exposui.

Ubi satis teneri calculus patet, eodem pene momento triplex motus adhibendus est; in utrumque latus, deinde extra, sic tamen, ut leniter id fiat, paululumque primo calculus attrahatur: quo facto, attollendus uncus extremus est, uti intus magis maneat, faciliusque illum producat. Quod si aliquando à superiore parte calculus parum commode comprehenditur, à latere erit apprehendendus. Hæc est simplicissima curatio.

Meges invented a strait instrument, with large lips at the superior part, and semicircular and sharp at the inferior part. This instrument he took between his fore and middle fingers, putting his thumb upon it, and conducted it in such a manner, as, at a single stroke, to cut every thing that was prominent above the stone.

Meges ferramentum fecit rectum, in summa parte labrosum, in ima semicirculatum acutum-que. Id. receptum inter duos digitos indicem ac medium super pollice imposito sic deprimebat, ut simul cum carne, si quid ex calculo prominebat, incideret.

We refer this operation to the class of those perform'd on the urethra and neck of the bladder, because all those who have consider'd it, have observed * that it really cuts these parts, and cannot be used on adults, except when the stone is engaged in the neck of the bladder †.

The

* See *Minglouseaux* on *Guy de Chaul's* Surgery, Tom. 2. pag. 739. & suiv. *Drelincourt*, *Légende du Gascon*. M. *Mery* on the operations of the small and great apparatus, by *F. Jaques*.

† Some *English* authors have greatly extoll'd the description which *Albucasis* (in *Chirurg.* part. 2. cap. 60.) gives of his own method of cutting.— They compare it to that of *M. Raw*, for which reason we shall here translate *Albucasis's* text, in order to shew that his method is not in reality different from that of *Celsus*, who has described it far better, as may be seen by comparing these two authors: “ When, therefore, says *Albucasis*, we attempt the cure, we must first of all inject a clyster, in order to evacuate the whole “ faeces from the intestines, since these sometimes hinder the operator from “ finding the stone. Then lift the patient up, shake him, and let him fall on “ his feet, or let him jump several times from an eminence, that the stone “ may descend to the mouth of the bladder. Then, after he is duly prepared, “ hold him in your arms, with his hands under his hips, that the whole of the “ bladder may tend to the inferior parts. Then touch him externally, in order to discover the stone, and if you find it in the proper place, make an “ incision forthwith upon it: but if you cannot find it, you must, if the patient is a child, anoint the forefinger of your left hand with oil; or, if he “ is an adult, your middle finger, and introducing it into the anus, search for “ the stone, and gradually bring it to the neck of the bladder; then with “ your finger press it outwards to the part where you intend to make the incision. Order an assistant to press the bladder with his hand, and another “ assistant, with his left hand, to draw the testicles upwards, and with his “ right hand to stretch the skin under the testicles in the place where the incision is intended. Then introduce a cutting instrument, of a proper form, “ and cut between the anus and testicles, tho' not in the middle, but at the “ side

The great apparatus, which is proper in most cases, was almost solely adopted : but surgeons observing

“ side of the left hip. Let the incision be upon the stone, let your finger be
 “ in the anus, and let the wound be transverse, large externally, and inter-
 “ nally narrow, so that it may be no more than is sufficient for the passage of
 “ the stone ; for perhaps, upon the incision, the finger in the anus so presses
 “ the stone that it is discharged without difficulty. It is to be observed that
 “ some stones have angles and corners, on which account their extraction is
 “ more difficult, whilst others are smooth, round, and easily extracted. For
 “ such as have angles and corners, a large incision ought to be made ; but if
 “ it cannot be extracted by this means, we are to press upon it with the fin-
 “ ger, or gently lay hold of it with an instrument whose extremity resembles
 “ a crescent, in such a manner as not to let it escape ; or we must introduce
 “ an instrument with a crooked extremity under it. But if we cannot, by
 “ these means, extract it, we must enlarge the aperture somewhat. If there
 “ is a copious hemorrhage, stop it with *xegi*. If there is more than one
 “ stone, bring the largest first to the mouth of the bladder, and make an in-
 “ cision on it ; then bring the small one to the same part, and do the same if
 “ there are more than two. If the stone is very large, it is wrong to make
 “ an incision on it ; for it happens, by this means, either that the patient
 “ dies, or is afflicted with a continual drivelling of urine, because the wound
 “ cannot be entirely consolidated. But we are to try the expulsion of the
 “ stone till it is discharged, or we must, if possible, break it in pieces with a
 “ forceps, so that it may be extracted by piece-meal.

What is still more remarkable in *Albucaasis* is, that (in Chap. 61.) he pro-
 poses the same method for women. But this author speaks of the affair, ra-
 ther as an historian, than as a practical physician who had performed the ope-
 ration.

“ Women are but little subject to the stone ; but, if this disorder happens
 “ to them, the cure of it is difficult, and long protracted, for several rea-
 “ sons. The first of these reasons is, that the woman is perhaps a virgin.
 “ The second is, that few chaste women, whether married or not, are wil-
 “ ling to expose their bodies to a surgeon. The third is, that there are no
 “ women so dexterous as to perform this operation. The fourth is, the great
 “ distance of the stone ; so that a deep incision is required, which always
 “ strikes terror into the operator. But if there is a necessity for the opera-
 “ tion, we must find a skilful midwife, tho’ few such are to be found. How-
 “ ever, if we cannot light on such a woman, we must seek for a modest, skilful
 “ physician, who is to give directions to a woman well skill’d in the affairs
 “ of her sex, how to find the stone. This woman is first to discover whe-
 “ ther the patient is a virgin, in which case she is to introduce her finger into
 “ the anus, and search for the stone ; and if she finds it, she is to secure it
 “ under her finger. Then the physician is to order the woman to put her
 “ finger into the pudendum of the patient, in order to discover the stone
 “ there : then he presses his left hand pretty strongly on the bladder. If he
 “ finds the stone, he must gradually and dexterously move it from the orifice
 “ of the bladder downwards, till it arrives at the root of the left hip. Then
 “ he is to make an incision upon it, opposite to the middle of the pudendum,
 “ at the root of the hip, wherever he finds it. He is not to remove his finger
 “ from the stone, but press it under it ; and at first he must only make a
 “ small incision. Then he must introduce a probe into the aperture, and
 “ if he finds the stone, he is to enlarge the incision till it admits of its ex-
 “ traction. It is to be observed that there are many species of stones, since
 “ some are small, others large ; some smooth, others rough ; some round,
 “ and others long, with ramifications. We must therefore know the species
 “ of the stone, in order to discover what measures are to be taken. If there
 “ is a violent hemorrhage, apply trituated *xegi* for an hour till it is stopp’d.
 “ Then return to the operation, till the stone is extracted. The surgeon
 “ is

erving the defects of this operation, which at first opens the urethra, a circumstance which produces a great dilaceration in the neck of the bladder, have at different times tried to render it perfect, by extending the aperture more towards the body of the bladder. Some have invented what they call the *master-stroke*, which, after the urethra is open'd, consists in extending the incision, by means of a groov'd probe, to the body of the bladder.

Others by conveying the handle of the probe to the groin, opposite to the side on which the operation is to be perform'd, make a lower and more oblique incision than that in the great apparatus. On account of this obliquity, the moderns have given the name of *lateral operation* to this method, which has been practised, and confounded by some antient surgeons, under that of the *great apparatus*. In performing this operation, at least in the modern way, we begin by making an incision from the bulbous part, and continue it to the body of the bladder.

It appears, so far as I know, that, from the time of *Couillard* to the days of *Frere Jaques*, no one has spoke of this method of performing the great apparatus. But it is also to be observed that *Frere Jaques* differ'd from those who perform'd it before him, in this, that he pass'd thro' part of the urethra, and convey'd the point of his instrument directly to the neck of the bladder; he also used a probe without a groove. In a word, as he was not surely conducted by this probe, it is not surprising that, in his incisions, he should make so considerable and dangerous deviations from the right track,

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“ is to be provided with all the instruments necessary for performing the operation on men. If there is an hemorrhage from an open'd artery, put the triturated *zengi* on the part, and compress it sufficiently with pledgets. This dressing is not to be chang'd, and the stone is to be left unextracted, lest perhaps the patient should die; then cure the wound. When, after some days, the hemorrhage is stopp'd, and the part begins to putrefy, return to the operation till the stone is extracted.”

as M. Mery has observed in opening the carcasses of those whom that monk had cut.

But, in order to give the reader an exact detail of the parts which the operator cut, we shall relate the observations of M. Mery, from which it is evident that the operation consisted in the *master-stroke*, as in the great apparatus; or, as in the lateral apparatus, in entirely cutting the neck, and even a little of the body of the bladder.

These methods, which tend to procure a larger aperture, no doubt diminish the inconveniencies a great deal more, because they facilitate the introduction of instruments, and prevent the dilaceration, which would be occasioned by the extraction of the stone, if the aperture were less extensive.

However, it is always certain that they do not hinder very large stones from making a considerable dilatation; neither do they remedy the other inconveniences depending on the part where the operation is performed, which is too much contracted by the angle form'd by the bones of the pubes; and this circumstance not only renders the extraction of the stone very difficult, but also induces such contusions as have often fatal consequences. Besides, we cannot fail to cut or tear several organic parts, which accompany the neck of the bladder, such as one of the *musculi acceleratores*, the *verumontanum*, the prostate gland, the neck of the bladder itself, and the urethra. The dilaceration or cutting of these parts, which are also bruised by the stone, may greatly contribute to the production of those symptoms which happen after the operation; and especially the incontinence of urine, and the incurable fistulas which remain after such operations.

The following are the observations of M. Mery on Frere Jaques's operation†: “ On the 7th of
“ De.

† Observations de M. Mery, pag. 17.

“ *December* 1697, I received an order from the first
“ president to attend the Hotel Dieu, in order to
“ be present at the extraction of a stone which had
“ been put into the bladder of a carcass. This
“ extraction was to be made by *Frere Jaques*, who
“ set about it in the following manner.

“ Having introduced into the bladder a round
“ and solid probe, without any groove, and of a
“ figure different from those used by the surgeons,
“ who cut according to the antient method, he took
“ a bistory of the usual form, but longer, with
“ which he made an incision in the left and inter-
“ nal side of the *os ischium*, and cutting obliquely
“ from below upwards, he divided all the parts be-
“ tween the tuberosity of the *ischium* and his probe,
“ which he did not extract. His incision being
“ made, he introduced his finger through the
“ wound into the bladder, in order to discover the
“ stone; and after having remark'd its situation, he
“ introduced into the bladder an instrument (near-
“ ly of the figure of a book-binder's polishing iron)
“ in order to dilate the wound, and by that means
“ facilitate the extraction of the stone. Upon this
“ dilatator, which he called his conductor, he thrust
“ a forceps into the bladder, and forthwith extract-
“ ed the conductor. Then having searched for the
“ stone, and laid hold of it, he extracted his probe
“ from the urethra, and afterwards his forceps with
“ the stone through the wound; and this he did
“ with a great deal of ease, though the stone was
“ almost as large as a hen's egg.

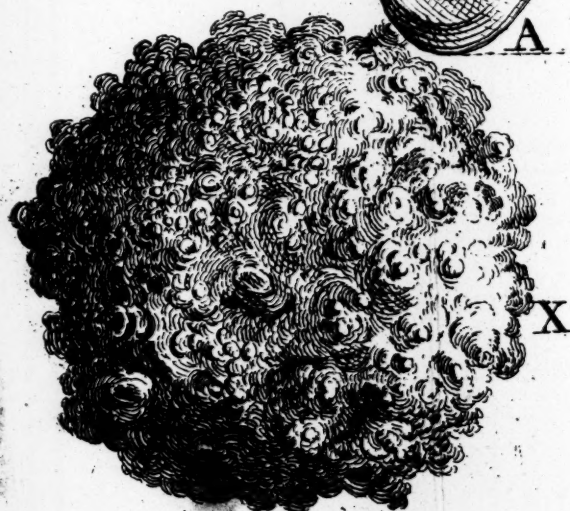
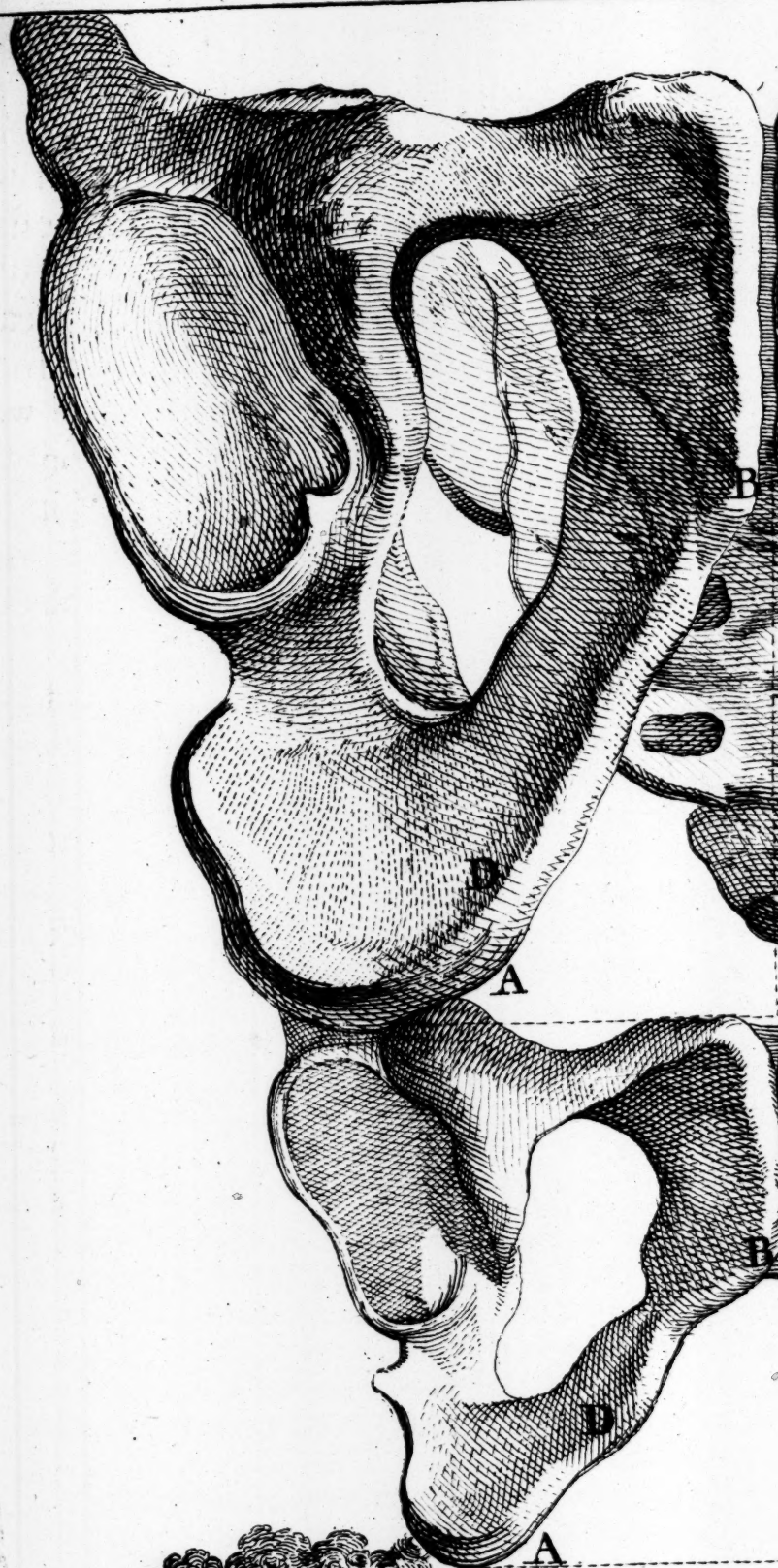
“ This operation being performed, I, in the pre-
“ sence of the physicians and surgeons belonging to
“ the Hotel Dieu, dissected the parts which had
“ been cut. By the dissection I made, and by
“ comparing them with the opposite parts, which
“ I also dissected, we remarked that *Frere Jaques*
“ had at first cut about an inch and an half into

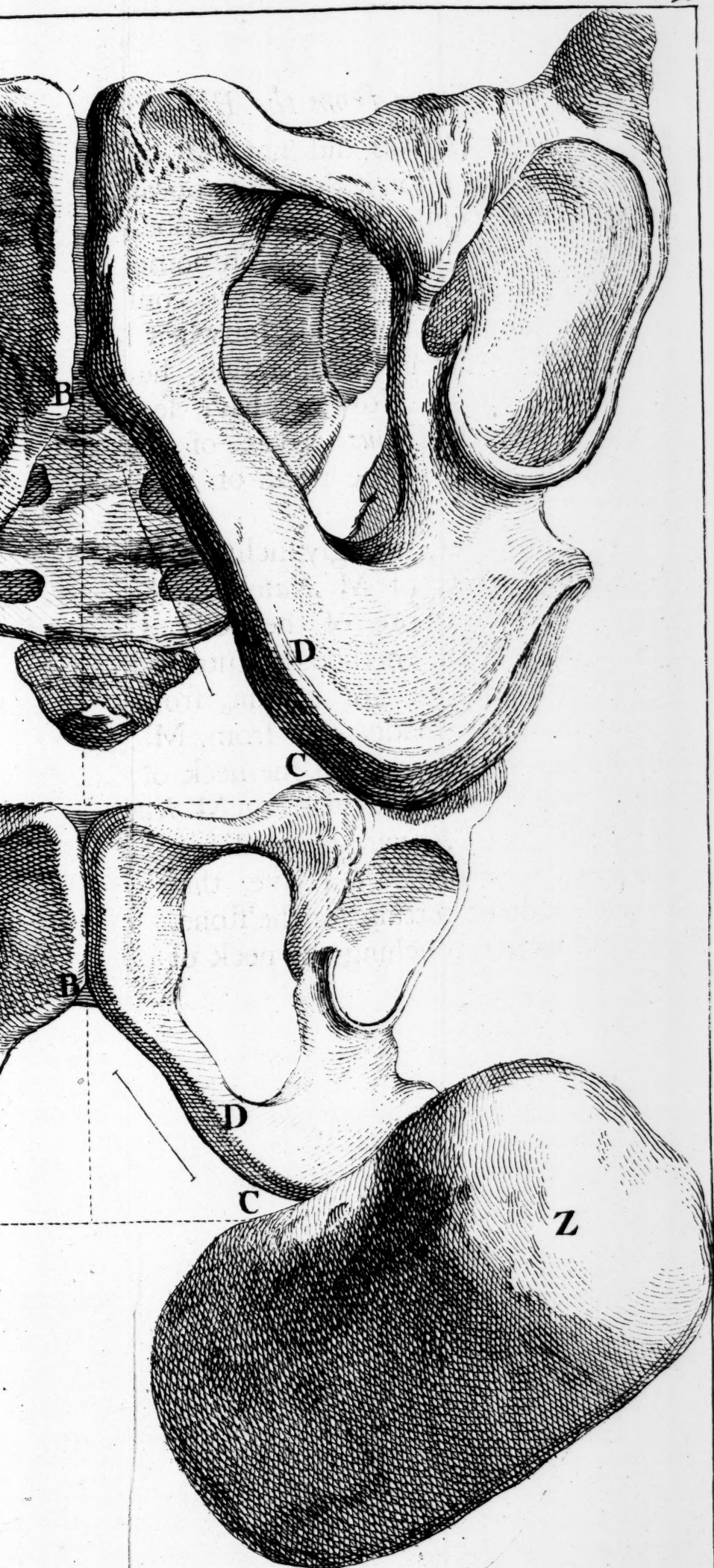
“ the fat, that he had afterwards conducted his
“ knife between the *musculus erector*, and the left
“ *musculus accelerator*, without wounding them;
“ and that he had cut the neck of the bladder in
“ all its length on the side, and about half an inch
“ of the body of the bladder.”

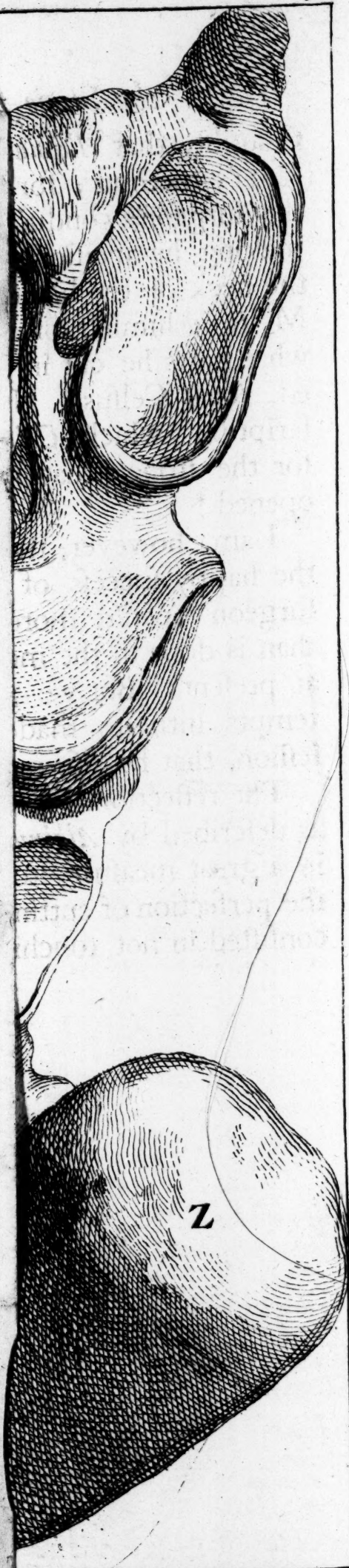
The third species of operations performed for extracting the stone from the bladder, include, as we have said, those which open that organ in its body, between the neck and the urethra. Under this species we shall class the operation of *M. Raw*, performed with the probe, and that which I practise with the trocar.

We shall here relate the method of *M. Raw*, because it is thought that this surgeon opened the body of the bladder, of which, however, we have no other proof, than a surprising success, which evinces, that this surgeon had a manner of operating, different from that which had been practised before him. *M. Raw*, who vigorously opposed the lateral apparatus of *Frere Jaques*, invented a method which he has not communicated to the world. The only description we have of it, is that given by *Albinus*, when he tells us, that *M. Raw* avoided the neck of the bladder, and the urethra, and that he open'd the bladder itself, on the side near the neck, and towards its inferior and posterior part. I was so struck with the advantages of this operation, that I resolved to adhere to it, and prefer it before all others. But when I tried it upon a carcass, I was surpriz'd to find that it was impossible for me to avoid opening the neck of the bladder, because the probe, in whatever manner I placed it in order to carry the incision farther, still conducted me to the neck of the bladder. All the surgeons who have made the same attempt with the probe, have not been able, more than myself, to cut the body of the bladder simply; whence it is thought,

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thought, that *Albinus* did not well understand *M. Raw's* method ; for it does not appear possible that this surgeon, conducted by his probe, could avoid making his incision, at least in some measure, in the neck of the bladder. This is conform to what *M. Raw* himself often said, for when he was ask'd what parts he cut in the operation, he only answered, *Read Celsus*. Now we have seen in the description which *Celsus* gives of the operation for the stone, that the neck of the bladder was opened.*

I am, however, strongly inclined to believe, from the happy success of *M. Raw's* method, that this surgeon open'd more of the body of the bladder than is done in the methods of cutting laterally used at present. But we are certain, from all the attempts hitherto made, and from *M. Raw's* confession, that he also opened the neck of the bladder.

The reflections I had made on *M. Raw's* method, as described by *Albinus*, enabled me, in a great measure, to perceive, that the perfection of cutting for the stone, consisted in not touching the neck of the bladder and the urethra, and in procuring to the stone, a passage from the largest part of the angle *A B C*, *Plate X.* form'd by the bones of the pubes. It appeared to me, that the most favourable place for entering the bladder was at the side of its neck *A*, and above the urethra *B*, *Plate XIII.* and *XVI.* since in opening the bladder in this place,

Experiments made by the author, in order to obtain his new method.

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* Though we have said that *M. Raw* compared his method with that of *Celsus*, yet we have no inclination ridiculously to confound these two methods ; for all the small apparatus, whether of *Celsus*, *Paulus Aegineta*, or *Albucasis*, that is, all the manners of cutting performed on the stone, push'd by the finger into the anus, or the vagina, can only be perform'd on children, and at most on women, if we give credit to some authors ; whereas the great apparatus is proper for persons of all ages, and this manner of operating by the probe, is not near so old as that we have mentioned. It is true, that when we perform the great apparatus laterally, or with the *master stroke*, we find the bladder almost in the same place as in the small apparatus. But this is not a reason for confounding operations so different.

we have no other parts to cut, but the skin A, *Plate XIV.* the texture of the fat B, the triangular muscle N P O, *Plate XII.* a small portion of the *musculus elevator* of the anus R, *Plate XII.* and XIV. and a little of the ligament H, of the angle of the pubes and the bladder ON, *Plate XIII.* XVI. With this view I prepared a carcass ||, the vessels of whose pelvis I injected, and filled the bladder with soft wax in order to extend it, and kept it in its natural situation. I then dissected the urethra C C, *Plate XVI.* the rectum V V V, the muscles, the vessels T Z, *Plate XII.* I destroy'd the triangular muscle N P O, *Plate XIV.* and XII. which possesses the angular space that the *musculi erectores* K, and the *acceleratores* G G, leave between them near the rectum. When I had laid bare the elevator R of the anus, and the ligament H of the pubes, I made, by conducting my bistory along the *musculus erectus* K, without touching it, an incision G F, which penetrated into the bladder.

In order to examine the passage of my incision beyond the *musculus elevator* *Plate XII.* and XIV. R, and to see the part of the bladder I had open'd, I continued the dissection to the bladder, and perceived that the incision I had made was large enough to permit the passage of a stone. It was placed between the neck A *Plate XIII.* of the bladder, and the urethra B, without touching either the one or the other; and as I had carefully dissected the vessels in their natural position, and had endeavoured to cut all those which I found in the course of my incision, I observ'd, that I had only cut some ramifications arising from the spermatic artery G *Plate XIV.* and XVI. concealed under the os ischium D; and that, among all the ramifications which go to the urethra C, *Plate XII.* there was none cut but K, *Plate XV.* and

and XVI. which goes to the bulb, and which is cut in all considerable operations of this kind.

I filled the bladder of another carcass with water, and, as in the former subject, dissected the *musculi erectores* K K, and the *acceleratores* G G, in order to uncover the angular space, which, as we have said, is found between these two muscles. I removed the triangular muscle P N O, *Plate XII.* and laid bare the *musculus elevator* R of the anus. Then I compressed the hypogastrium, to see how much the bladder, which was full of water, was convey'd by this compression to the space which I had laid bare, and I observed, that it presented itself so sensibly, that, by holding my finger between the *musculi erectores* and *acceleratores*, and by pressing at different times on the hypogastrium with the other hand, the undulation and effort of the liquor were distinctly perceived by my finger, through the *musculus elevator* R of the anus, *Plate XII.* and XIV. which at that part, that is, below and at the side of the prostate gland E, *Plate XVI.* presses almost immediately against the bladder, C, *Plate XIV.* Then I thought that a trocar, as is observ'd by M. *Juncker* on the operation of the puncture of the perinæum*; was the most commodious instrument for entering surely into the bladder, and that afterwards I might, with the knife used by lithotomists, conducted upon this instrument, make an incision sufficient for the

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* " The best method is, to make the incision in the part where *Frere Jaques* orders it; for, by this means, neither the urethra, nor the neck of the bladder are injur'd. But it is better to pass a trocar through this part into the bladder, and drawing out the piercer of the trocar to let the urine flow through its pipe, till the natural passage is again open'd. *Conspectus Chirurg.* tabul. 97. p. 674." The same method was at the same time proposed in *Bibl. de Chirurgie de M. Manget*, tom. 4. p. 304. M. *Garengot* also relates in his *Splanchnology*, second edition, printed in 1742. tom. 1. ch. 14. pag. 342. that M. *de la Peyronie*, when demonstrating the surgical instruments in the royal garden, in 1717 or 18, shew'd a trocar six or seven inches long, which he had happily used at *Montpellier*, to make the puncture of the perinæum in a man, who for some days had laboured under a retention of urine, during which it was not possible to probe him. M. *de la Peyronie* plung'd the trocar at the side of the tuberosity of the ischium into the bladder, and by that means gave vent to the urine.

extraction of the stone. I made a trial of this with a trocar, and a common straight bistory. My puncture being made, I slipt the point of the bistory upon the trocar, which served me to conduct it into the bladder, and when I perceived that I was arrived at the liquor, I lower'd the point of my trocar, and at the same time raised that of my bistory, so that the extremities of these two instruments separating from each other, like the two branches of a pair of compasses, I easily made an incision in the bladder, as large as I desired.

These experiments, which so well answer'd my expectations, assured me of the possibility of the operation I had proposed. I considered what ought to be the form of the trocar and knife used for this operation. I easily found, from my last experiment, that the trocar ought to be longer than ordinary trocars, and that it ought to have two other very essential properties; the one, to advertise me, by a small discharge of urine, when it had enter'd the bladder; and the other to fit it for surely conducting the knife to this part. I could not, on this occasion, forget the use of the groove of the probe employed in the operations of the great apparatus. This groove, destin'd to direct the knife in the incision, and afterwards to introduce the gorget, or the conductor, into the bladder, made me think of forming such a groove for the same uses upon my trocar, *Plate IX. Fig. 1.* I order'd to be made in the canula *E F, Plate IX. Fig. 1.* and *2.* of that instrument, a groove *G H*, which reached to its point. I afterwards easily discover'd the other advantage, of which I stood in need; for I forthwith perceived, that this same groove, which ran along almost the whole canula, might procure a discharge of the urine, at least when the trocar had penetrated into the bladder. The knife *M N, Plate IX. Fig. 7.* ought also

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...in the two experiments I have related, I had directed

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Fig. 10.

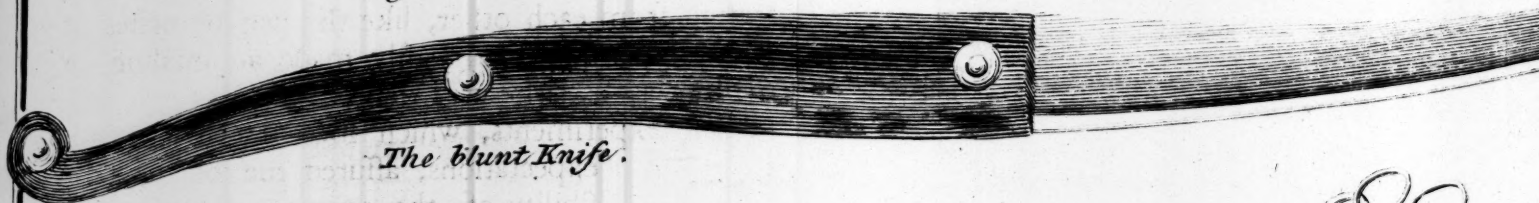


The Trocar



Fig. 11.

Fig. 6.



The blunt Knife.

Fig. 12

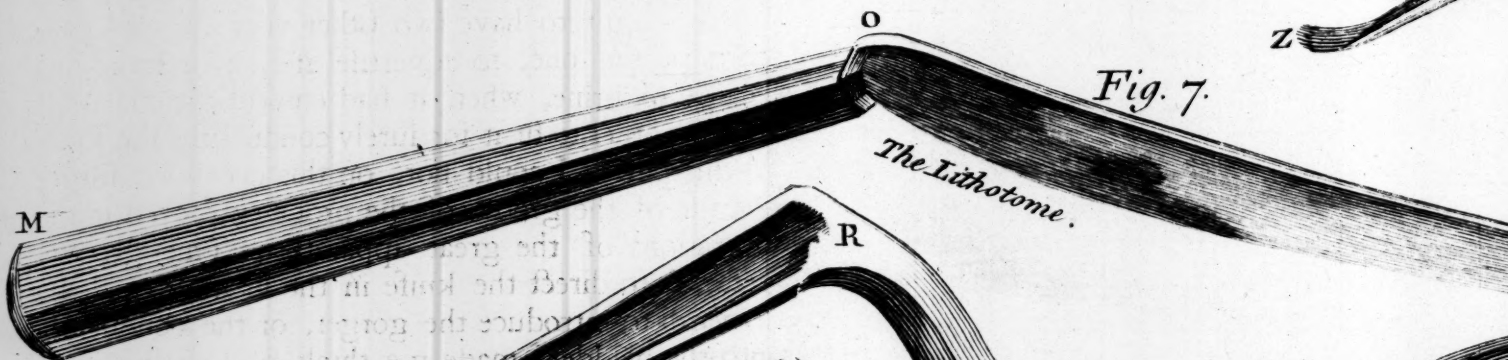
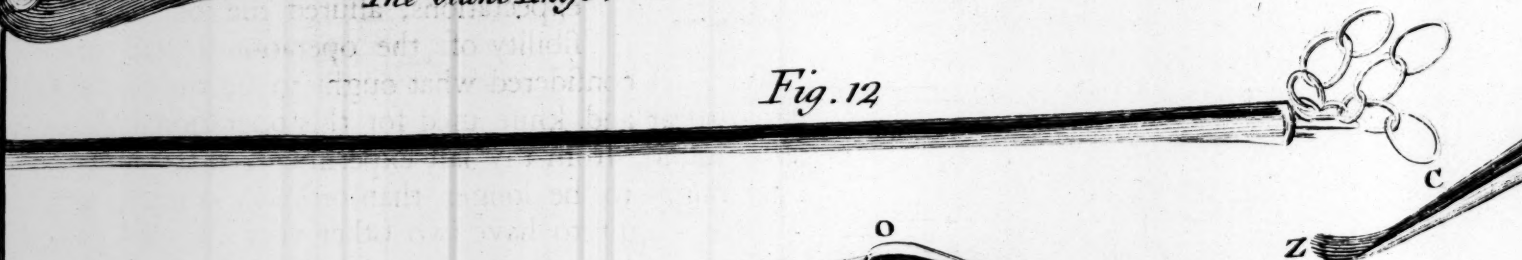
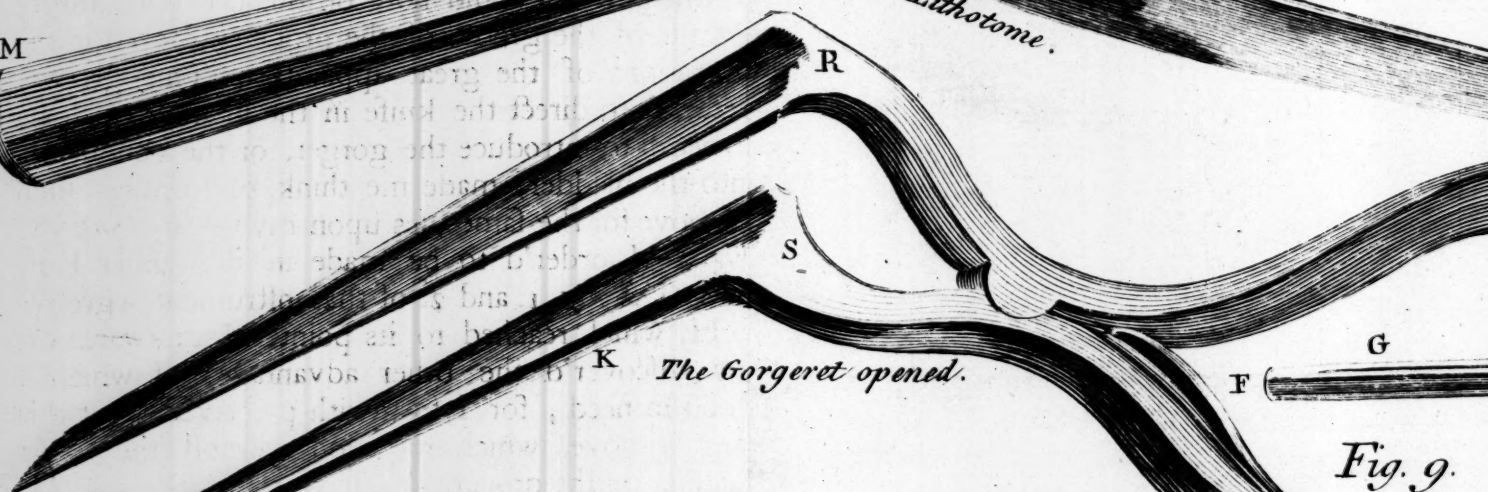


Fig. 7.

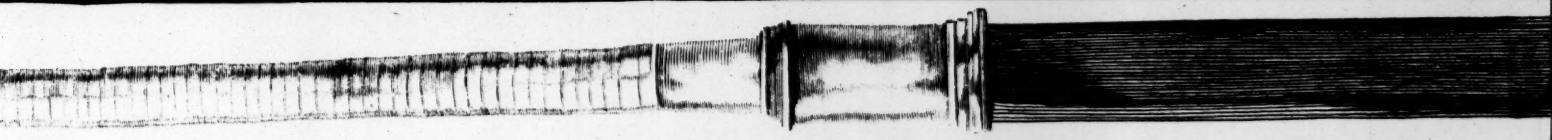
The Lithotome.



The Gorgenet opened.



Fig. 9.



The Trocart, with its Canula.

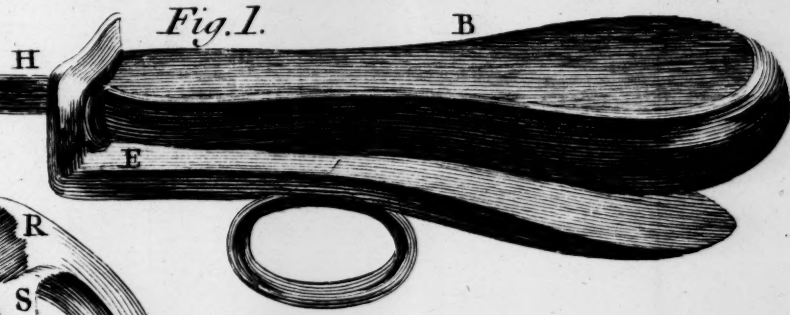
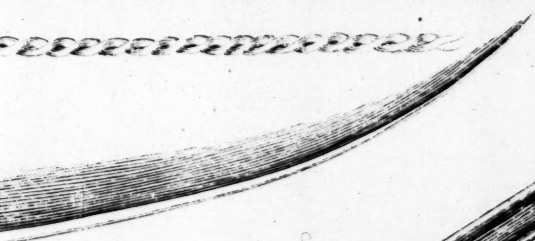


Fig. 1.



The Gorgere, with two Branches, which open for a Dilatater.

Fig. 4.



The Bandage for Compressing the Urethra.



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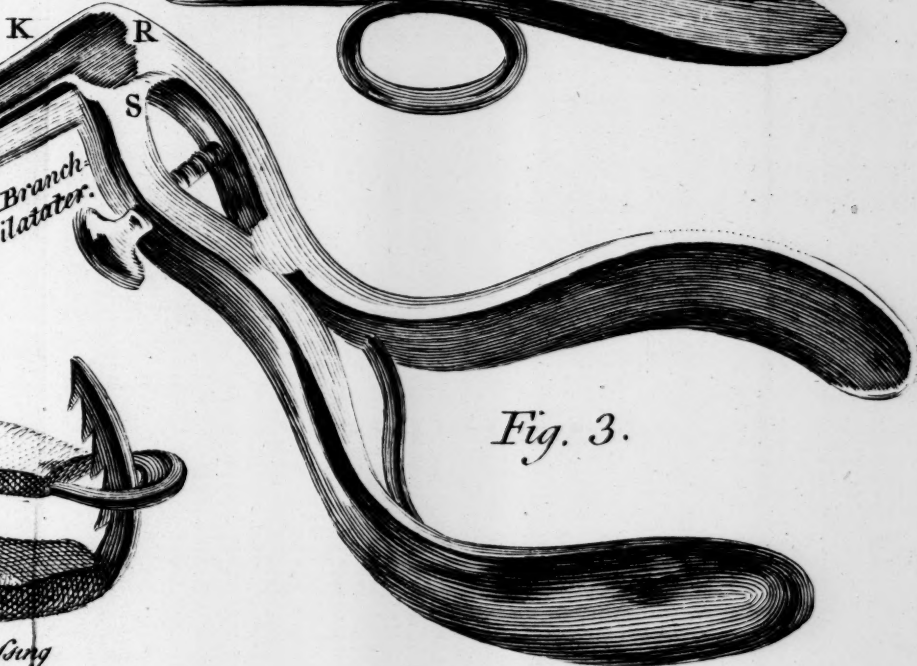
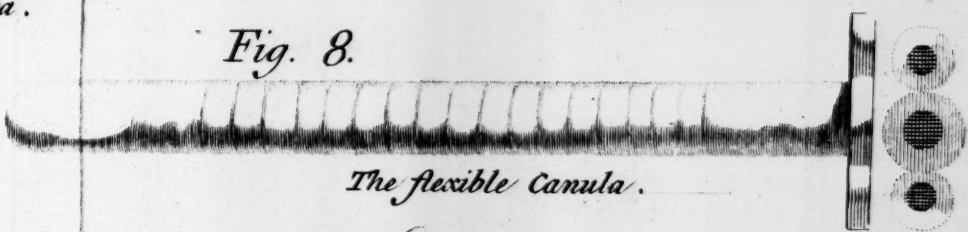


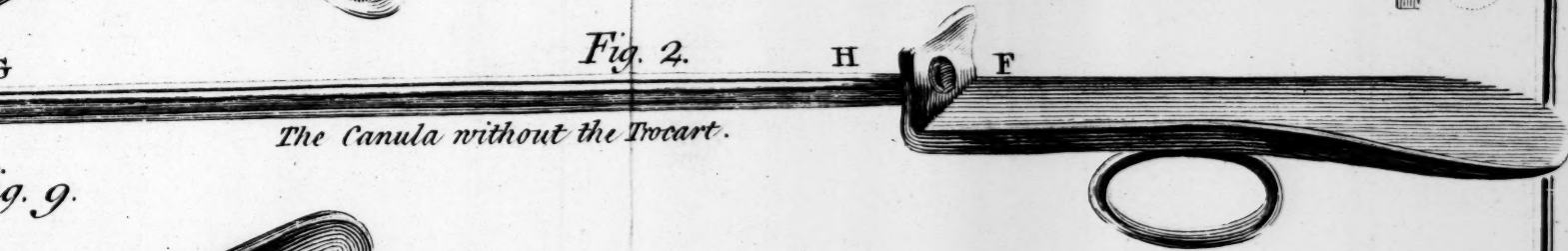
Fig. 3.

Fig. 8.



The flexible Canula.

Fig. 2.



The Canula without the Trocart.

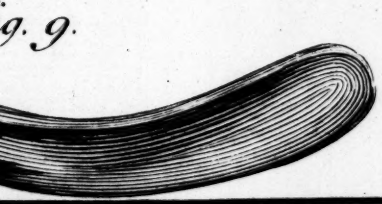
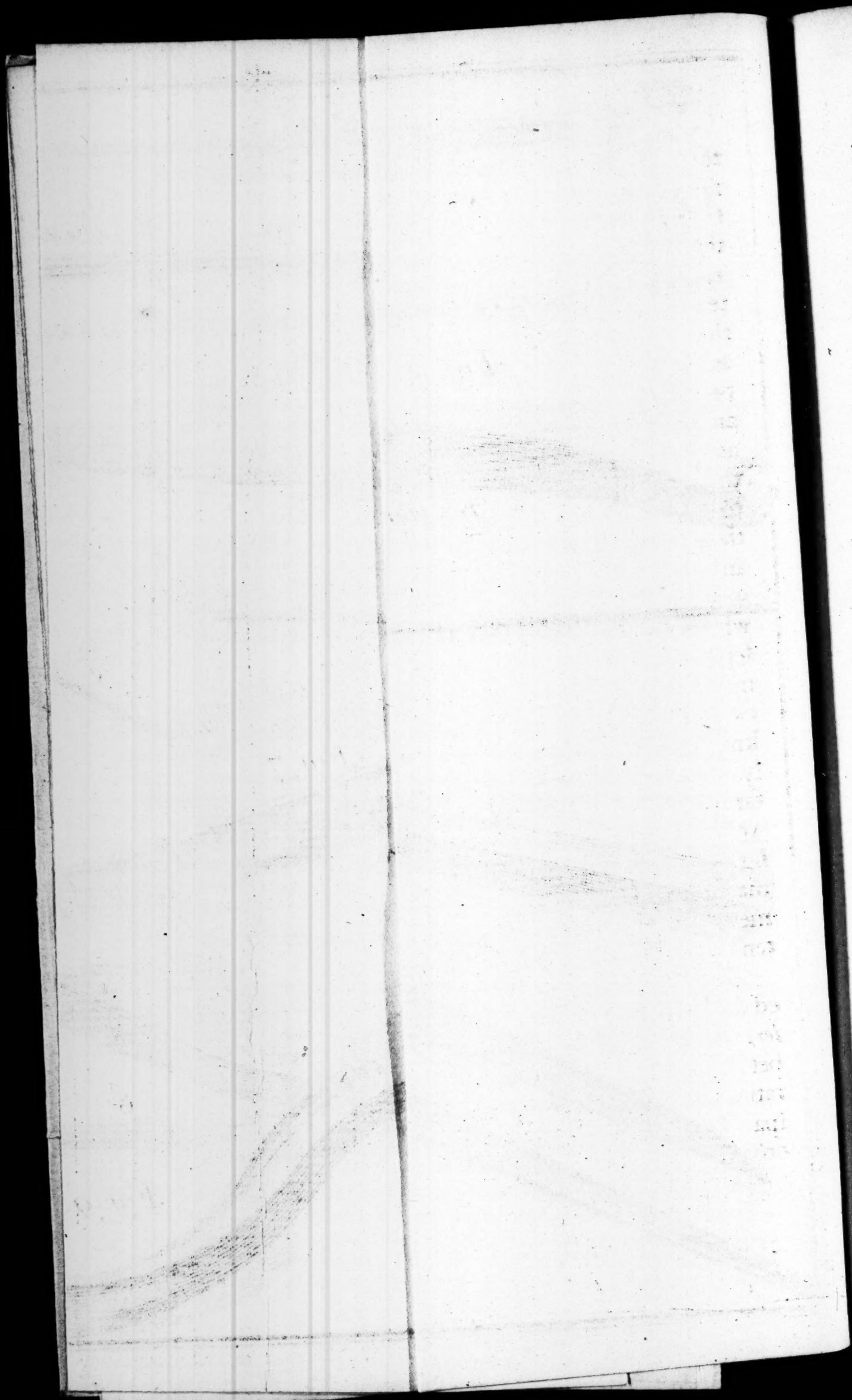


Fig. 9.



to have its particular properties; for, 1. it was necessary that its length should be proportioned to the thickness of the flesh which it was to cut; 2. that it should be adjusted to the groove G H, *Fig. 1. and 2.* which I had invented; 3. that being entered into the bladder, its point should not wound that organ; 4. that it should be of such a figure as to facilitate the motions necessary for making the preceding incision. I perceived, that in order to answer all these intentions, it ought to be strait, and much longer than the usual knives used by lithotomists*; that its back ought to be thin enough to slide easily in the groove G H, *Fig. 1. and 2.* that its point N, *Fig. 7.* ought to be a little blunt, and that at the joining of the blade to the handle, it ought to have a small bending, O, *Fig. 7.* which, when the blade of the knife is placed in the groove, separates the handle of the knife from that of the trocar, to the end that, by afterwards uniting these two handles I M, *Plate XV.* the point N of the knife, and that A of the trocar, may be sufficiently separated to extend the incision in the bladder as far as is requisite.

After having reasoned in this manner, I drew the figures of the instruments, which were forthwith made in my presence, by M. Noel, a skilful instrument-maker; and when I had got them, I was intent on multiplying my tryals.

In the two experiments I have related, I had dissected the *musculi erectores* K K, *Plate XII.* and the *acceleratores* G G, in order to uncover the interval R H between them, which was the place where the operation was to be perform'd. I had also freed this space from all the fat which filled it, so that, in order to penetrate the bladder, I had nothing to cut but the *musculus elevator*, and the side of the bladder

* This knife M N, and the trocar B A, together with its canula E F, are represented in their natural bulk in *Plate IX. Fig. 2. and 6.*

bladder itself. I resolved, however, to try this operation independently of these preparations. I therefore proposed, with my trocar, to penetrate through the skin and bladder, and afterwards with my knife to make an incision similar to that I had made in my last experiments.

In order to make these new attempts, and multiply them as much as I thought necessary, I engaged M. *Berlbe*, then surgeon to the Salt-petre house, to procure me subjects from his hospital; we then shut ourselves up together in his chamber, that we might make our tryals without being disturbed. I filled the bladder of the carcass of a full-grown man with water, and made a ligature on the penis to prevent the discharge of this water. I then placed him in the same situation with that used for the great apparatus. M. *Berlbe*, with his right hand, raised the scrotum, and with his left, compressed the hypogastrium with a cushion, G, *Plate XI*. I introduced the fore-finger of my left hand into the anus R; I pushed the rectum from the side of the right hip, to stretch the skin on the left side, in the part where I was to operate, and to remove the intestine from the course of the incision which it was necessary to make. Then, through the skin and flesh, I, with the fore-finger of my right hand, sought for the tuberosity of the ischium, D, *Plate X. XI. and XII.* and the edge of that bone from the extremity, D, *Plate XI.* of this tuberosity, to B, the beginning of the scrotum. I with a pencil mark'd a point F about two lines from the edge of the tuberosity D, about an inch above the anus R, brought low, and drawn towards the opposite side X, *Plate XI.* by the finger Z placed in the fundament. I marked another point O, fourteen or fifteen lines higher than the former, about two lines from the raphé, and about as far from

Method of performing the operation.

from the edge B of the os pubis. I drew a line O F from one of these points to the other, in order to mark externally the course of the incision which I was to make, and which ought to pass along the *musculus erector*, K, *Plate XII.* without touching it, and go to terminate on the edge of the *accelerator* G. These measures being taken, the line which was to regulate my whole operation being exactly drawn, and my finger being still fix'd in the fundament, in order to keep down the rectum, and push it from the right side, I took the trocar in my right hand, placed its point at the inferior extremity F, of the line F O *Plate XI.* the groove of the trocar being situated towards the scrotum. I thrust this instrument *Plate XIV.* into the body of the bladder, conducting it horizontally, without inclining either to one side or another*. I had pierc'd the bladder, as I observed, by the dissection, four or five lines above the urethra B, *Plate XIII.* and about the same distance from the neck of the bladder, in its side A. †

As soon as I had penetrated into the cavity of the bladder, I was apprised of it, by the water which flow'd through the groove of the trocar. Then I extracted my finger from the fundament, I quitted the handle of the trocar which I held with my right hand, in order to lay hold of it with my left hand, without moving it from its place. I drew the piercer

* Though this direction is the most proper, because when the bladder only contains a glass and an half, or nearly two glasses of urine, it conducts to a point almost equally above the urethra, and at the side of the neck of the bladder; yet there is no danger arising from not following it exactly; for on all sides round the point O, there is a considerable distance where the trocar may arrive without inconvenience: Thus the direction of the trocar is not confined to a rigorous niceness; but it is to be observed, that the method here prescribed, is not only preferable to all others, but also most easily executed.

† If we suspect a considerably large stone, we may make the puncture externally, a little lower than we have order'd, and direct the point of the trocar somewhat upwards, in order to penetrate the bladder in the same part. The aperture, which will be more extensive, will facilitate the passage of the stone. If we have failed to take this precaution, it may be easily remedied in the manner we shall afterwards direct.

piercer four or five lines out of the canula, that its point might not reach beyond the end A, of the canula, *Plate XIV. and XV.* I took my knife in my right hand, and pass'd the back of its blade N O, *Plate IX. Fig. 7.* in the groove of the trocar G H, *Fig. 1. 2.* till its point was stop'd by the small brim G at the extremity of the groove. The resistance I felt to the point of my knife, and the large quantity of water discharged, convinced me infallibly, that this instrument was sufficiently enter'd into the bladder*. I then thought to make my incision ON, *Plate XIII. and XVI.* in the membranes of the bladder in the same manner (*See Plate XV.*) as I had done in the preceding experiments, that is, my right hand, in which I held the knife, leaning securely on my left hand, with which I held the handle of the trocar; I rais'd the point N of the knife, and, at the same time, a little depressed the end A of the trocar, in order to facilitate the incision of the membranes of the bladder. I gently inclined the edge of the knife to the raphé, in order to give the incision a direction similar to that of the line O F, *Plate XI. and XII.* which I had marked externally†. When the extremity of the knife appeared sufficiently distant from that of the trocar, to have made an aperture of thirteen or fourteen lines in the bladder, I depressed the point of the knife into the groove of the trocar, extracting it about

* We ought to attend very narrowly to these two circumstances, and above all things, to take care that the patient make no motion capable of displacing the trocar, and making it come out of the bladder; for in this case, the knife would not be conducted into the cavity of the bladder, and in making the incision we should not open the bladder, which accident once happened, so that I think it proper to apprise surgeons of it, that they may be the more upon their guard.

† As the whole thickness of the skin and fat we are to cut, makes a small resistance, I think it proper to inform those who attempt this operation, of this circumstance, that they may not be obliged, after the incision, to make a new effort, which would hinder the free motion of their hand. This observation is also to be attended to in making the puncture with the trocar, since the skin is much harder to penetrate than the other parts, so that we ought always to make choice of good instruments.

about an inch. (See *Plate XVI.*) Then I made a motion contrary to that I have described; for instead of separating the point of the knife from the trocar, I separated the handle of the knife from that of the trocar, in order to finish anteriorly the incision *ON P Q*, which I had made in the skin, flesh, and fat, between the surface of the skin and the bladder. Neither did I forget to direct the edge of my knife according to the line which I had mark'd externally before I began my operation. I took care to make my incision no larger than this line, *OF*, *Plate III.* which was about 14 or 15 barley-corns, that it might be only 12 or 13 barley-corns opposite to the *musculi erectores*, *K*, *Plate XII.* and the *acceleratores*, *G*; because, by making the incision a little narrower, at the part *T*, *Plate XVI.* than elsewhere, we avoid cutting the accelerator, come not so near the urethra, *C*, *Plate XV. & XVI.* and are not in danger of meeting with the edge of the os pubis. (See *Plate XII.* where this edge is mark'd by points $\parallel$.)

I was not so sparing in the incision of the skin and fat which cover the muscles; for, in extracting my knife, I extended this external incision near to the scrotum *H*, *Plate XI.*

When this incision was entirely made, I quitted the knife, and took the gorget, *Plate IX. Fig. 3. & 9.* I passed its point, *Z*, into the groove, *G H*, *Fig. 1. & 2.* of the trocar, in order to conduct it into the bladder, in the same manner as I had done the knife; that is, till I was stopp'd by the brim *G* of the groove. Then I extracted the trocar, and turn'd the groove of the canula upwards, which had been downwards when I introduced the gorget, *CK*, *Fig. 3. & 9.* This gorget is form'd of two pieces, or branches, *R S*, which may be separated; and,

$\parallel$ All these measures were taken on the body of an adult, of a moderate size; so that, in children, they must be diminished in proportion to their ages. See, in the tenth Plate, the proportions which ought nearly to be observed in judging of the angle of the os pubis, according to different ages.

and, if it is necessary, serve for a dilatator. I convey'd my finger into this groove, to examine the extent of the incision, which I found sufficiently large to admit a forceps, and I actually introduced it very easily. Then I extracted my gorget, and separating the branches of them almost as wide as when they hold a pretty large stone, I extracted them in this state, without any violence †.

In order, afterwards, to examine the state of those parts, where I had performed my operation, I dissected them, and found that my incision terminated at the edge of the *musculus accelerator*, G, Plate XII. two lines from the *os pubis*. I could not be exactly sure of the extent of the aperture of the bladder, because its membranes were contracted after the evacuation of the liquor. I extended them gently, and in this last state, the incision, O N, Plate XIII. XV. & XVI. was about fourteen lines in length. It began at an equal distance above the urethra, B, Pl. XIII. and the side of the neck, A, of the bladder, and ascended obliquely to the middle of the pubes D; that is, it kept almost the same direction with the external incision. After this scrutiny, I wanted nothing to perfect my operation, and was convinced that the measures I had taken had faithfully conducted me thro' the parts where I wanted my incision to be.

Thus I found nothing to be alter'd in the operation
tion

† An author, who has spoken of my operation three years after the tryals I have related, proposes, before the use of the trocar, to make an external incision in the skin and fat obliquely from above downwards, as is done in the lateral operation; and then, almost in the place we have mention'd, to convey the trocar into this incision, in order to penetrate the bladder. The author thinks, that, by means of this incision, we may perceive the undulation of the urine, which I have not observ'd. It would, in my opinion, be necessary for this, that the incision should extend beyond the triangular muscle. I do not condemn this incision, since it may be of use to those who begin to perform this operation, the better to feel the edge of the bone, which ought, as we have said, to be our guide externally for the thrust of the trocar, and the incision between the *musculi erectores* and *acceleratores*. It does not, however, seem necessary, and my own method appears to be more simple.

tion I have described||, and only contented myself with repeating it several times, in order to perform it with safety on living persons.

I durst not, however, undertake this operation till I was authoris'd by such surgeons as are best acquainted with the various methods of cutting, before whom I, between 1729 and 1731, made several trials, with which they were perfectly satisfied.

In *May* 1731 I, by their advice, determin'd, according to this new method, to cut a patient of 14 or 15 years of age, who seemingly had a good constitution. I prepared him by venesection and purging. Immediately before the operation, I injected water into his bladder, and applied a small bandage *Plate IX. Fig. 4.* to the urethra, in order to prevent discharge of the liquor. I cut him before most of those who had been present at my trials, and extracted a stone as large as a small hen's egg. No accident superven'd, and the wound was perfectly cured in a month.

But I observ'd in this first operation, that it was difficult to make an injection into the bladder; for it was not only painful to the patient, but was also very imperfectly made, because the pain forced him to make motions, or efforts, which expelled a large quantity of the water injected into the bladder. For this reason I resolv'd not to use any injection for a patient whom I cut after the same manner in the *Hotel-Dieu* of *Seillons*, in the month of *April*, the following year. The young man was about seventeen years of age, and in probing him I found that his bladder was very large, of the truth of which circumstance I was convinced by the quantity of urine he discharged each time. The night before
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|| I thought, however, that a knife much more crooked than that I have described, would be more proper. I imagined that I could make the whole of my incision, without taking the point of the knife from the groove of the trocar; but so crooked a knife is difficult to direct, for which reason I preferred the first, after making trial of both.

the operation, I order'd him to retain his urine till I came, which he easily did, because next morning I found him asleep. Every thing being got ready for the operation, I applied a small bandage *Fig. 4. Plate IX.*) to the urethra, and forthwith cut the patient in presence of Mess. *Petit* and *Boulanger*, surgeons of the same hospital, and before several other surgeons of the town. The stone was nearly of the same weight with that of the preceding patient, but it was of a more considerable bulk. Mess. *Petit* and *Boulanger* undertook the management of the patient, and eighteen days after inform'd me that the cure was perfectly compleated.

In the month of *October*, the same year, I prob'd a patient of about sixty years of age, and discover'd a stone. I found that the bladder was very small, that he discharged but a very small quantity of urine at a time, and that this discharge was accompanied with a great deal of pain. I imagined that, in this case, my operation would not be proper: but the patient having heard a favourable account of my method, importun'd me to perform the operation upon him. It came into my mind that if I should order the patient to drink liberally, the quantity of urine might gradually dilate the bladder. I was surpris'd at the success of this expedient; for the bladder not only became able to contain a quantity of urine sufficient to admit of the operation, but the patient also felt much less pain in making water.

In the presence of several surgeons, I cut him on the first of *December*, tho' the season was very unfavourable, because excessively cold. I was forc'd to perform the operation, because the patient would wait no longer. I extracted a stone two inches and some lines in breadth, and more than an inch in thickness. The wound was in a laudable state, notwithstanding the bad management of the patient,
who

who was foolish enough to bring on an indigestion on the seventeenth day after the operation. On the same day there supervened a flux, with a considerable fever, which became intermittent. Purging, and the use of the Peruvian bark, dissipated the symptoms, and the wound was cured at the end of forty days.

In 1735, a man of twenty eight years of age, being afflicted with the stone, applied to me for relief. He had used a great many medicines order'd by a quack. By means of these medicines, his pains were augmented to such a degree, that he resolved to submit to the operation. He made water very often, and very little at a time. I had recourse to the same expedient I had used for the preceding patient. I began by making him drink, in the morning, a pint of ptisan prepared with dogs-grass, liquorice and linseed. I daily augmented this potion, till it arrived at two pints. I every day perceived the dilatation of the bladder, by the quantity of urine he discharg'd at each time, because I ordered him to make water in glassess. At the end of eight days, he discharg'd, at least, a glass-ful and an half at each time, and with much less pain than before. This quantity of urine made me know, that the bladder was dilated sufficiently for the operation. Before I began it, I applied the small bandage, *Plate IX. Fig. 4.* to the penis, in order to retain the urine. I forthwith cut him, in presence of Messrs *Chicoineau*, first physician to the king, *Marcot*, physician in ordinary, *de la Peyronie*, *Petit*, *Boudou*, *Malaval*, and several other eminent surgeons. I extracted from him a hard stone, which surpris'd every spectator by its bulk, and the inequalities of its surface. Every one present agreed, that it was impossible to extract this stone through the neck of the bladder, whatever incision might have been made in it, without destroying the patient.

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tient. This stone *X Plate 10.* greatly lacerated the flesh, which circumstance brought on a considerable suppuration, and a fever, which lasted eight or nine days: This fever was dissipated by several venesections. Besides the matter of the suppuration, which was very copious, the bladder, which had been injured by the stone, whose surface was full of inequalities, furnished a great deal of viscid matter, which was discharged from the wound and the urethra. The urine gradually resumed its natural course, and the wound was entirely closed at the end of thirty-six days, without leaving the patient subject to any inconvenience.

On the 12th of *April 1736*, I cut a young man about seventeen years of age, according to this method. The operation presented nothing singular, but was perform'd in the same circumstances, and with the same success as those before mentioned.

These five operations sufficiently evinc'd the advantages of this new method, but they afforded me very little instruction. The success itself imposed on me; I thought I had arrived at the highest perfection of the operation, but a more extensive experience afterwards shew'd me some inconveniencies I had to expect.

One of these inconveniencies, which most struck the spectators, though at the same time it is not the most dangerous, is my not having entered the bladder with the trocar, in cases where there is no urine in it. The first time this accident happened, some circumstances retarded the operation, and the pain forced the patient to retire into a corner, where he concealed himself behind a door, and loosened the bandage in order to make water. In order that I might not perceive this, because he dreaded lest it should retard the operation, he again applied the bandage in the manner it was before. I was effectually deceived by this means; for when I wanted

to penetrate the bladder with the trocar, this instrument slipt over its membranes without piercing it. As I confided too much in the success of the former operations, I did not expect such an event. A small quantity of blood flowing through the groove of the trocar, imposed upon me, because I took it for urine ting'd with blood; neither did I perceive that I had not entered the bladder, till I made the incision. But I made all the advantage I could of the aperture I had made, for by the assistance of a probe, which I put into the bladder, and which I easily felt with my finger, which I introduced into the wound, I opened the body of the bladder, extracted the stone, and the operation succeeded perfectly.

This accident made me more cautious, for the future, not to fall into the like error. But I have since been imposed on, in an unexpected case, at the charity hospital for men. There were several patients to be cut, and four of us surgeons were to perform the operations. The servants of the hospital had, through inadvertence, moved one of the patients, whom I had prepared, from his bed, and laid another in his place, into whom I pushed the trocar without procuring a discharge of urine, which made me suspect that I had not enter'd the bladder. I did not judge it proper to make an incision, so that I extracted my trocar, and by the great apparatus cut this patient, who was not prepared for my operation. In a word, no urine was discharg'd when I cut him, and he was cured as soon as is usual.

In order to guard against this inconvenience, I have since found a very simple means of being assured of the degree of plenitude of the bladder. With my finger, which I introduce into the anus, and with my hand, which I press on the hypogastrium, I make several alternate motions, by which, I, through the membranes of the rectum, exactly

assure myself of the bulk or plenitude of the bladder.

Among the patients I have since cut, there was one in the charity hospital, whose bladder was not sufficiently full of urine, as I easily perceived by making this scrutiny. I deferr'd the operation for some hours, at the end of which, his bladder being sufficiently full, I cut him with success.

In order to be assured of the plenitude of the bladder, there is another very safe and easy method. After having, for several days, order'd the patient to drink till his bladder is capable of containing a glass or two of urine, which is sufficient for the operation, we must, on the day in which it is to be perform'd, make the patient drink a pint or two of his ordinary ptisan, and for the season of operating, wait till he is seiz'd with an inclination to make water, at which time we must apply a bandage on the urethra, and forthwith proceed to the operation.

We may be well assured of the quantity of urine to be found in the bladder, by that we have seen the person discharge at each time for some days before.

We ought not, however, to neglect the other method mentioned, because, by assuring ourselves with our finger, of the bulk and situation of the bladder, we judge more easily of the direction the trocar ought to have, in order to make it enter the bladder effectually.

We ought also, especially in old patients, carefully to examine the bulk of the rectum, because, in some, this intestine is greatly dilated above the sphincter. In this case, not only by my method, but also by all others, we should be in danger of opening the rectum, if it was full of fæces, for which reason it is better to defer the operation, and empty the intestine.

This

This precaution is also necessary, that the bladder, when compressed, may produce a collapsion of the rectum, and approach nearer to the os sacrum H, and may, being thus brought low, be the more surely pierced by the trocar, in the proper place. With this view, I never fail to order the patient a clyster the night before the operation.

The bad success of some operations has made me discover, that my method, as well as others, is, in certain circumstances, attended with an inconvenience more terrible than that I have now mentioned; for when the urine is suppressed, or when the matter of the suppuration becomes copious, and has not a free course, the cellular texture is inflam'd and obstructed, which occasions infiltrations, and even gangrenous abscesses, that sometimes prove mortal. This accident, on which I had made a great many reflections, when I used the high apparatus, still more strongly roused my attention, when I knew that it had proved mortal to some patients cut in my method; I thought I might prevent this by placing on the wound a canula* *Plate IX. Fig. 8.* to maintain, as long as possible, the discharge of the urine, and of the matter of suppuration; and I have observed, that ever since I used this canula, these accidents have not happened; for of nine patients whom I cut in the charity hospital in 1740 and 1741, only one died, but for a very different reason. There was, in his bladder, a stone which filled almost its whole cavity, and broke into a great number of fragments, which I extracted at different times during six weeks. The patient's weakness obliged me to make the extraction at different times, which occasioned a looseness, that greatly exhausted the patient, and proved mortal two months after the operation.

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* The canulas of silver or lead may be used on similar occasions, yet I prefer those of silver, which ought to be flexible, and cover'd with a piece of soft linen.

The canula has also another advantage, not to be omitted, which is, that when a very large or irregular stone has opened some considerable blood-vessels, we may, by its means, easily stop the blood, since it secures the lint employed in compressing these vessels.

The instances of bad success I have met with, have enabled me to discover another very great advantage attending this new method of cutting.

None of the other methods can procure a passage sufficient for the extraction of large stones, without exposing the parts through which they pass, to a violence, which has generally fatal effects; and though in my first operations I had the satisfaction happily to extract stones of a considerable bulk, yet in extracting very large stones, *Plate X. Z*, I have been obliged to make so strong efforts in order to overcome the resistance, that the stones in their passage have produced contusions and dilacerations which have proved mortal, sometimes very soon, and at others after a very long and considerable supuration.

These misfortunes made me examine the parts, which seemed to form the greatest obstacles to the extraction of these stones. I therefore found that the cord *ON Pl. XII.* of the fibres of the inferior edge of the triangular muscle, and that part of the *musculus elevator* which descends to the margin of the sphincter of the anus, made the principal resistance. When the bulk of the stone exceeds the incision which I make in these muscles, it carries off with it, towards the fundament, the portions of these muscles, which oppose its passage, and, by collecting their fibres, form a bridle very difficult to be broken. When I understood that the resistance depended principally on these portions of muscles, I perceiv'd that it was easy to remove the obstacle, not only because I found no inconvenience in cutting the bridle
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which forms it, but also because the stone, which presses it outwards, renders this small operation very easy. With this view, I ordered an instrument-maker to prepare a crooked bistory with a probe point, (*see Fig. 6. Plate IX*) which might be easily convey'd between the branches of the forceps, upon the stone, at the part of the bridle, in order to cut it. We sometimes have recourse to this expedient in the other methods, but with much less advantage, because we cut the prostate gland and the neck of the bladder, whereas, in my method, we only cut a small parcel of fibres of no consequence; and since I have followed this method of operating, I have extracted very large stones with happy success.

MEMOIR XXII. By M. FAGER.

On a cancerous Tumor of the Breast.

THE experiments which *Pyrrus Gabriel**, an Italian physician, Messrs *de la Peyronie*, *Petit*, *Quesnay*, and *Bouquet*, have made, in order to discover the kind of humour of which cancerous tumors are formed, and which furnishes the matter of their suppuration, have only discover'd in these tumors, an inspissated lymphatic juice, which, by a putrid dissolution, is converted into a corrosive and malignant sanies, against which it were to be wish'd that we could find proper remedies.

It has sometimes happened, that experience alone has discovered valuable specifics against disorders treated by the ordinary medicines, which the rules of art seem'd to prescribe: But these happy discoveries are very rare. The healing art is hitherto ineffectual against a great many terrible disorders, such as cancers, which do not permit us patiently to wait for the assistances of chance, with which she may perhaps never supply us. It is therefore expedient to have recourse to all the means which reason can suggest, for the cure of disorders so violent and pressing.

The only method of discovering the remedies for a disease by ratiocination, is carefully to get acquainted with the nature of this disease, the disorders of the solid parts affected by it, the character of the humours which form it, the alterations which render these humours malignant, the substances which appear most opposite to the faults that the solids and fluids contract, and, lastly, with the cir-

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* Miscellan. nat. curios, ann. 2. Dec. 3. Obs. 1.

cumstances, which either seem to favour the use of these substances, or to render them useless. Thus we ought to neglect nothing, that can contribute to make us acquainted with all these circumstances.

I do not, however, insinuate, that theory alone can safely conduct us in the cure of disorders, the remedies for which are hitherto entirely unknown. All I assert is, that by this means we may light on happy expedients. Thus, for instance, a practitioner persuaded that the malignity of the cancerous virus depended on a putrid or alkaline depravation of the humours, imagined that the *vermiculated boufeleek*, which abounds with an acerb juice, must check the virulence of this humour, and in some cases made a tryal of it with a great deal of success.

Though it was thought evident, from many experiments, that a cancer was formed by stagnant lymph, yet more accurate and extensive experiments, communicated to the academy by M. *du Fouart**, discover'd gelatinous juices in a large indurated tumor of the thigh, which seem'd to partake somewhat of the nature of carcinomatous tumors. This made me imagine that these juices might also, in some measure, according to the opinion of the antients, furnish the matter of a cancer. In order to satisfy myself in this particular, I made experiments, similar to those related by M. *Fouart*, on a well characteriz'd tumor of this kind; and these experiments, join'd to some others, have entirely dissipated my doubts.

A woman, of forty-two years of age, on her left breast received a blow, which was
Operation.
 succeeded by a hard tumor, which gradually augmented to such a degree, as at last to possess the whole body of the breast. This tumor was become painful, and I was not consulted till four years after the accident which occasioned it.

It

* See a former memoir of M. *Fouart*,

It had then arrived at a prodigious bulk, and began to be ulcerated. The pains were lancinating and very intense, for which reason I proposed the amputation, and the patient consenting, I performed the operation in presence of Messrs *Houftet*, *Quesnay* and *Hevin*. I began at the superior part of the tumor; I cut out at first, in a large portion of its circumference, the skin and fat with which it was cover'd; I then drew it a little towards me, laying hold of it with my left hand, in order to separate it from the breast; I thrust my fingers into the incision, the better to judge of the depth of the induration, and of the adherences of the tumor, and to detach it the more surely; I alternately continued the incision in the circumference, and the dissection with my fingers, drawing always the body of the tumor towards me, with my left hand, in order to separate it more and more from the breast. In proportion as I advanced, I also took care to cut the bridles, which made a small resistance to my fingers, and a portion of the fibres of the pectoral muscle, which was adherent to the tumor.

In this manner I exactly removed all the body of the tumor. It had some eminences in form of nipples, which were a little depressed in the pectoral muscle, and which I should have perhaps cut, if I had not taken care to draw the tumor towards me, and to detach it almost entirely with my fingers. The hemorrhage was speedily stop'd by an assistant, who placed his fingers on the extremities of the cut vessels that discharged the most blood. I perceived towards the arm-pit, under the tendon of the great pectoral muscle, some fat, which appeared to be slightly infected, and was really a little hard. I removed this fat with my scissars, moistened the wound with a weak solution of alum in water, in order to brace up the mouths of the
opened

open'd vessels, and dressed it gently with common soft lint.

We began with examining the external part of the tumor, which was elevated in form of a triangular bruch, with several varices, which ran along it, and terminated in an ulcer as broad as half a crown, that corresponded to the part on which the patient thought she received the blow. There were on the internal part of the tumor, as I have already observed, two eminences or nipples, of the same consistence and colour with its body. We removed the skin and fat of the tumor, in order the more easily to examine its substance, which appeared, as it were, to be form'd of a collection of hydatides, full of an inspissated juice, which was shining, uniform, somewhat transparent, like the horn of a lantern, of a considerable viscosity and solidity, and yet of so elastic a quality as that it easily yielded to the touch, and speedily resumed its former state. All these bladders, thus dilated, and filled with inspissated juice, were cover'd with membranes, so delicate, that it was impossible to distinguish them exactly from each other, or even from the juice they contained. They were only discover'd by small portions of pellicles, which we raised from globular and solid masses of juice, of the bulk of the largest pea. We could not discover whether the juice which form'd these small masses or hydatides was included in a single vesicle, or in several, comprehended in that which appeared externally. The whole tumor was formed of similar solid hydatides, more or less large, and so exactly united with each other, that they were confounded, and all included in a very thin cystis or membrane which cover'd the whole tumor. This tumor, when freed from the skin and fat, weigh'd three pounds.

Anatomical inspection.

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I divided the tumor into three nearly equal parts.

Experiments made
on the tumor.

I immersed the ulcerated portion in boiling water, and forthwith took it out again. By this means it became much harder than before, the hydatides, or small solid masses we have mentioned, which in conjunction only formed a pretty shining surface, were seen more distinctly, and render'd the surface of this portion of the tumor unequal and pimply, like the head of a colly-flower. I again immers'd this portion at different times in boiling water. By this means it became harder, and had its bulk greatly diminish'd by the contraction and bracing up of its substance. Then I boil'd it over a brisk fire for four hours, during which time it furnish'd a great deal of froth, like that arising from flesh boiling in water; a froth, which is only formed of the lymphatic or albuminous juices.

We also boil'd some of the grease separated from the tumor, which did not, in like manner, furnish froth, since, on the contrary, the water was cover'd with small drops of melted and shining fat. However, the portion of fat assum'd a small degree of consistence, perhaps because it was already impregnated with a little of the juices which form'd the tumor.

These experiments concurr'd to prove, that lymph predominated in the tumor. I was also willing to assure myself by boiling, as *M. du Fouart* did, whether the lymph was not fix'd with gelatinous juices, and even with some other pinguious substances.

But in boiling the lymph, we found no mark of these juices, since it did not become fix'd, but, on the contrary, remain'd very fluid. Next day I made several experiments on this boil'd lymph, but it left no mark of acidity either on copper or blue paper: on the contrary, when mix'd with syrup of
vio-

violets, it appeared to contain a salt, which already tended greatly to alcalisation. In a word, the syrup assum'd a very sensibly greenish colour, tho' the boil'd lymph had not, as yet, contracted any bad smell, which might lay a foundation for our suspecting a begun putrefaction*. The express'd juice of the tumor induc'd the same change of the colour of the syrup, but made no impression on the blue paper. M. *du Fouart* had, by roasting, obtain'd a gelatinous juice from a portion of the tumor we have before mentioned. We had recourse to the same experiment, but it discover'd nothing similar to us. We afterwards put some of the expressed juice into a pretty warm stove, in order to see whether this juice would be coagulated and indurated, as pure lymph is, or whether a part would remain fluid or fus'd by the heat. The whole juice was indurated, and the stove continued dry, so that all these experiments only enabled us to discover a purely lymphatic juice, since they never afforded the gelatinous juice we sought for. Though we were sure of the existence of the lymphatic juice, yet we did not neglect some other experiments, which also proved it. We pour'd boiling water on the express'd juice, in which it produced a kind of effervescence. A part of the mixture was reduc'd into lymphatic filaments, and the rest of the liquor appeared turbid and whitish. We in like manner pour'd upon the expressed juice, spirit of wine, which also excited a gentle effervescence in it. The mixture became turbid, assumed a milky colour, and the whole of it became filamentous. At the end of eight days I found it indurated, as lymph

* Though the greenish colour which the syrup of violets assumes, is not always a sign of the presence of an alcali, yet it at least denotes, in the present case, that the salt of the humour had retain'd nothing of the acidity which it has at first in the chyle, and that it consequently tended entirely to alcalisation.

lymph always is, when mix'd with spirit of wine. It then only form'd a dry mass, which had receiv'd no taint from putrefaction.

The express'd juice was somewhat thick. I tried, by different mixtures, to discover some substance capable of dissolving it; I especially tried such solvents as to me appeared most active and powerful. M. *de la Cassaigne*, the kings apothecary, who furnish'd me with these solvents, desired to be present at our experiments, which convinced us, that this humour had but very few solvents; for oil of tartar per deliquium coagulated it immediately, spirit of vitriol excited an effervescence in it, and afterwards inspissated it; distill'd vinegar made it ferment gently, and coagulated it a little; the volatile alcali of sal ammoniac only produced a gentle effervescence in it, without either coagulating or dissolving it. The effervescence was much more considerable with the salt of vipers, and the liquor remain'd milky; volatile spirit of hartshorn only render'd the liquor milky; sal ammoniac produced no remarkable effect upon it. We cut a small slice of the tumor, and put it into urinous spirit, from which it receiv'd no change. All these mixtures procur'd no dissolution; we only saw some coagulations, but these were produced by fix'd alkaline salts, and acids. We cannot, however, attribute the inspissation the lymph had acquir'd in the tumor, to any salt of this kind; for the salt which predominated in this lymph, on the contrary, was *alcalescent*, and already in some measure *volatilis'd*; and we have observed, that this kind of salt neither inspissated nor dissolved it. The only causes we could find for the inspissation of this humour, were its continuance in the parts, and a want of action in the solids, which it obstructed. In a word, experience proves that the want of action in the solids is sufficient to destroy the fluidity of the humours.

Neither must we permit ourselves to be imposed upon by the effervescences we observed, when the alcalis fermented with the juice of this tumor. It would have been formerly concluded from this circumstance, that the salt of this juice was acid, but we are now no longer determin'd by this equivocal mark.

Several authors look upon sal ammoniac as a dissolvent, and also assure us, that a small quantity of acid salts, diluted in a large quantity of phlegm, dissolve all our humours instead of coagulating them, except milk, which they coagulate effectually. Prejudiced in favour of this principle, I was surpris'd that vinegar a little coagulated the express'd juice of the tumor, and that sal ammoniac produced no dissolution of it. This species of contradiction induc'd me to make some farther tryals. I pour'd distill'd vinegar on the juice which the spirit of wine had coagulated, by which means the juice was a little dissolved; and the same effect was produced by pouring urinous spirit, and spirit of sal ammoniac upon it; thus the acid, and the volatile alcali, produc'd the same effect; but it was in a case which but little favour'd our scrutinies, for which reason I had recourse to some other experiments, which to me appear'd more instructive. I took four portions of the tumor, each of which weigh'd an ounce and a dram; I put one of these portions in vinegar, another in pure water, and the other two in water, in which I had dissolved sal ammoniac, and sea salt separately; I every two days chang'd the vinegar, the pure water, and the solutions of these two salts, that the liquors, being renew'd, might act more efficaciously, and that putrefaction might not seize the portions of the tumor, especially that in the pure water, which however had a bad smell every time it was chang'd. I imagin'd, from this small taint of putrefaction, that the lymph might be gradually dissolv'd, and separated from
the

the solid texture which contain'd it, and that it would be easy to dry this texture, when entirely deprived of the lymph, and to weigh it, in order to see what proportion it bore, in the tumor, to the humour which form'd it.

This expedient did not succeed; the portion of the tumor did not corrupt but with great difficulty, and I perceived that the small dissolution, caused by the putrefaction, did not more spare the solid texture, than the humour which it contain'd: Thus I depended no more on this experiment. The solution of sea-salt not only preserved the portion of the tumor from putrefaction, but also made it retain its consistence. But the solution of sal ammoniac greatly soften'd it, without suffering the least mark of putrefaction to appear. The effect of the vinegar was still more considerable, since, at the end of eight hours, the lymph assumed the consistence of a fix'd, but very friable fat. It separated of its own accord from the portion of the tumor, in small clusters as large as a pea. These small clusters appeared entirely disengaged from all the solid parts, and seem'd only to be form'd of pure lymph. The texture which contained them was entirely collaps'd, and seem'd to compose only one membrane, somewhat thick, soft, and viscid. But as this texture was not as yet entirely freed from the lymph, I left it to macerate in the liquor.

When the whole lymph was separated from it by maceration, I dried the membrane, in which several small cavities were found. It weigh'd forty grains, which amounted to little less than a sixteenth of the whole portion on which I made the experiment. I for some time longer kept the portions of the tumor I had put in the solutions of sal-ammoniac, and sea-salt, and the portion put in pure water, which was changed every day. They all retain'd their consistence, except that in the solution of sal
ammo-

ammoniac, which became still somewhat softer, but not to such a degree, as that the lymph quitted the solid texture.

By these experiments, we only obtain'd a very imperfect dissolution, since by vinegar itself the lymph did not become fluid; for it was rather separated in small, soft, and friable clusters, than dissolved. It is also to be observ'd, that for this purpose it was necessary to keep the portion of the tumor a long time in maceration. Hence it is obvious that we ought to depend but little on attenuating and inciding medicines for the cure of cancerous tumors. We are, therefore, with the ancients, in some measure, reduced to a necessity of using simple emollient, and resolvent medicines. We may, indeed, look upon emollient, as true attenuating remedies. But this does not hold with respect to resolvents, which do not operate, except in so far as they excite the action of the vessels, in so far as, after this action is excited, the vessels divide the stagnant humours, and put them in motion; and lastly, in so far as the active parts of the remedies, which have excited the action of the vessels, are in their turn agitated by the vessels, and by means of this agitation forc'd to penetrate and divide the humours. Besides, this last effect is difficultly proved, except perhaps in the metallic remedies, whose parts have a bulk and weight sufficient to receive a motion, by which they may penetrate into, and act upon the substance of the humours. Mercury itself, which is looked upon as the most powerful of all attenuants, whether taken internally or applied externally, can only operate in this manner by the interposition of the action of the vessels. If this action is entirely extinguish'd, mercury produces no effect; so that it is not, properly speaking, an attenuant, but a resolvent, which only operates on the humours by the action of the vessels.

Emollients, as well as resolvents, are only proper in the beginnings of indurated tumors which may become carcinomatous, especially those occasioned by any blow; for when the organic force of the solids is destroy'd, the humours which are moisten'd and soften'd by emollient remedies, are easily depraved in the place where they are lodg'd; because, not being moved and sent back into the course of the circulation, by the action of the solids, they must in this case be much sooner corrupted, than when they are less moist and fluid.

It would, in this case, be in vain, by resolvents, to attempt the removal of the juices moisten'd and attenuated by means of emollients; because the former of these remedies, operating entirely by the organic action of the solids, can produce no effect when that action is extinguish'd. Thus, when carcinomatous tumors are arrived at a certain state, it is evident they cannot be cured by medicines, but must be destroy'd by extirpation.

Among emollient remedies, mineral or sulphureous waters seem to surpass all others; because they are less subject to putrefaction. I class these waters among those emollients which I look upon as true attenuants, but of a different kind from those active, attenuating, and inciding remedies, which have been thought to be so many menstruums capable of dividing and dissolving the humours, and which, as we have seen, are very rare, and very ineffectual, especially in the present case. Emollients, on the contrary, are aqueous and oleous remedies, which, by insinuating themselves, and penetrating gently into our inspissated juices, moisten and dilute them. This penetrating quality is found in a high degree in mineral waters; because their volatile sulphur is animated by the considerable heat they have at their source. For this reason the pumping of these waters on such tumors succeeds admirably well, provided

vided the organic texture of the parts is not destroy'd. This I have often observ'd at *Bareges*. A remark I made at *Aix la Chapelle* induced me to think, that sulphureous waters did not act as simple resolvents. When I made venesections in the foot in the water of *Aix la Chapelle*, there were no lymphatic filaments form'd, as usually happens. I examined the lymph twenty four hours after the venesection, and still found it dissolv'd, though the water had lost its heat. Hence I concluded, that sulphureous waters acted immediately on our albuminous juices, whether taken internally, or applied externally. I confess I passed over this fact with negligence, because the dissolving virtue of mineral waters is so generally believ'd, that I did not then doubt of it. But if such another occasion should present itself, I should be much more attentive; and in order to render myself more certain with respect to this point, I should make tryals on the thick pellicles form'd on the blood taken from the veins in inflammatory disorders. I wish some skilful practitioner, who has an opportunity of a similar nature, would take the trouble of clearing up this subject.

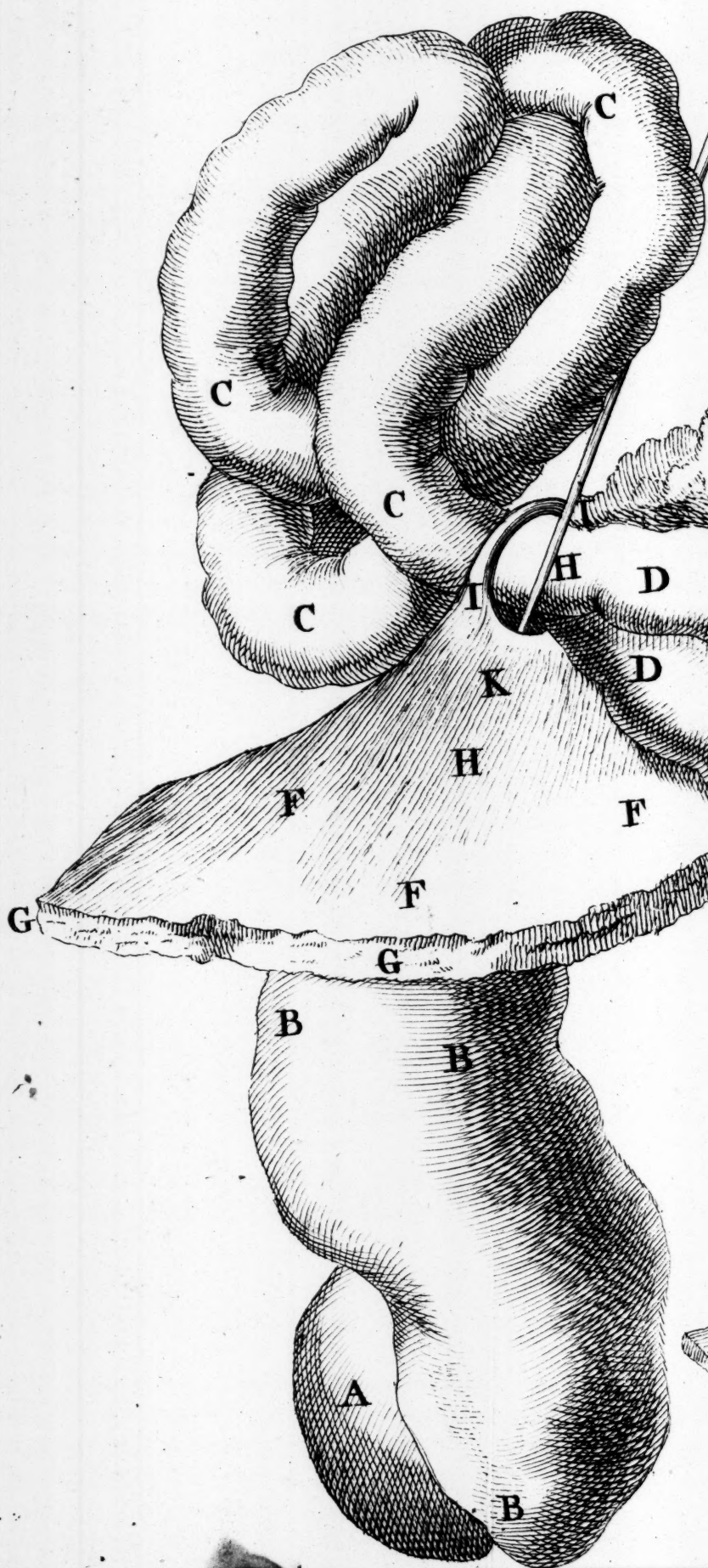
I shall not here speak of the success of the operation. Though the wound is not entirely closed, yet I have reason to hope for a perfect cure. The operation brought on no troublesome symptom, except a fever, which is usual at first, when the inflammation begins in the wound. About six weeks are now elaps'd since I performed the operation, and the cicatrix advances very fast. Besides, a cure, or bad success, have, in similar cases, nothing remarkable in the eyes of practitioners. Amputation is not always a sure remedy in these cases, tho' it is the only one from which relief is to be expected. A surgeon who has recourse to it when it is unavoidable, and who carefully does every thing prescribed by art, is not accountable for the event.

MEMOIR XXIII. By M. DE LA PEYRONIE.

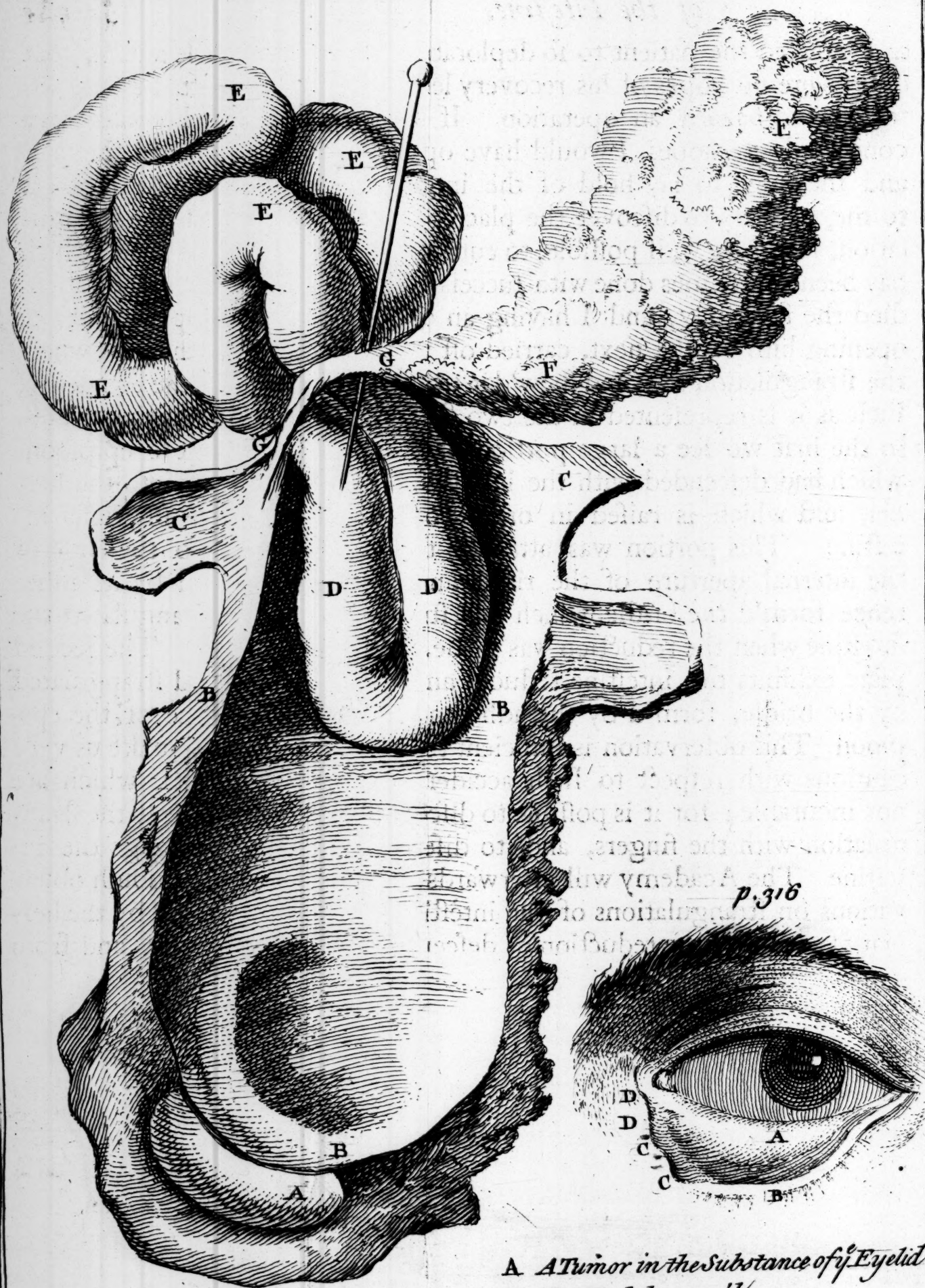
Observation on a strangulation of the intestine, occasioned internally by the adherence of the epiploon at the superior part of the ring.

Surgery has already discover'd various strangulations of the intestine, in the interior part of the abdomen, and these discoveries have often proved beneficial to patients. But the strangulation of which I am to treat, is a species, of which we have but few examples. A postillion of thirty five years of age, had, ever since he was ten years old, a hernia in the left groin, without ever wearing a truss. An effort he made occasion'd a strangulation of the intestine, which was succeeded by the usual symptoms. His surgeon had recourse to the remedies proper in these disorders, and not without success; since, in a short time, he procured a relaxation, which permitted the reduction of the intestine. The surgeon thought, that by means of this reduction, the body would be render'd soluble, and the patient relieved. But, contrary to his expectations, the symptoms, instead of being diminish'd, were augmented to such a degree, that in the space of twenty four hours, the pulse was extinguish'd, the *miserere*, the tension of the abdomen, and the hiccup were excessively violent, and the extremities were cold. Such was the state of the patient when I was call'd. Upon examining the ring where the descent had been, I found no tumor in it. With my finger I plung'd into the ring the skin which cover'd it, and by the dilatation, sufficiently assured myself, that there had been a descent, and that it was entirely reduced. This reduction had not, however, procured any evacuation by stool. All the symptoms of the strangulation had persisted,
and

Fig. 1.



*Fig. 2.*



A A Tumor in the Substance of y^e Eyelid.
 B The Eyelid revers'd.
 C C The lower lacrymal Point.
 D D An Old Cicatrix.

and reduced the patient to so deplorable a state, that there were no hopes of his recovery left, since it was too late to hazard an operation. If I could have conceived any hopes, I would have opened the sack and the ring, to lay hold of the intestine, draw it to me, and try to discover the place of the strangulation, with a view, if possible, to cut the bridle, which has been sometimes done with success. The patient died the same day, and I having an opportunity of opening him on the next, carried off the part where the strangulation was, and shew'd it to the Academy, such as it is represented in the two following plates. In the first we see a large portion of the epiploon, which had descended with the intestine into the hernia, and which is raised in order to shew the intestine. This portion was attach'd to the edge of the internal aperture of the ring, and by its adherence form'd the bridle which had strangulated the intestine when the reduction was made. The second plate exhibits the intestine reduc'd and strangulated by the bridle, form'd by the adherence of the epiploon. This observation is sufficient to make us very cautious with respect to such accidents, which are not incurable; for it is possible to discover the strangulation with the fingers, and to disengage the intestine. The Academy will afterwards publish observations on strangulations of the intestine by the herniary sack, after the reduction of descents; and from these observations it will appear, that the intestine has sometimes been disengag'd in the abdomen with success.

Plate VI. A, the testicle.

B B B, the herniary sack open'd.

C C, two portions of the muscle which form'd the ring, which have been separated, to shew the sack open'd in all its extent.

D D, a portion of the ileum which descended into

the hernia, and which has been push'd to the right side of the bridle.

E E E E, a portion of the same ileum, which remain'd in the abdomen.

F F, the epiploon, which descended with the intestine into the herniary sack, and which cover'd the intestine.

G G, the bridle form'd by the adherence of the epiploon, and which caused the strangulation in the abdomen.

Plate VII. Fig. 1. A, the testicle freed from the scrotum.

B B B, the sack of the peritoneum, dilated by the intestine, and epiploon, which form'd the hernia.

C C C C, the portion of the ileum which remain'd in the cavity of the abdomen.

D D, the portion of the ileum which formed the hernia, and which was reduc'd.

E E, a portion of the epiploon which had descended with the intestine, into the herniary sack, and which had been reduced at the same time with the intestine.

F F F, the portion of the peritoneum which lines the internal surface of the abdominal muscles, and which is rais'd in order to shew the internal edge of the ring, and the bridle formed by the adherence of the epiploon.

G G G, the thickness of the muscles, fat, and skin.

H H H, a probe which indicates the passage of the ring, thro' which the intestine and epiploon fell into the herniary sack, in order to form the hernia.

I I, a bridle in form of a handle, form'd by the adherence of the epiploon to the peritoneum, at the superior part of the ring, and by which the intestine was strangulated when it was return'd into the abdomen, after the relaxation of the strangulation caused by the ring, and at the time when
it

it was thought free in the cavity of the abdomen.
K, the part where the intestine had been first strangulated by the ring, mark'd by points.

- Fig. 2.* A, the internal aperture of the ring.
B, the place where the greatest strangulation was, which was first caused by the ring, mark'd with points.
C C, a portion of the epiploon, which, with the intestine, form'd the descent.
D D, a bridle form'd by a portion of the epiploon, which was adherent to the peritoneum at the internal edge of the ring.
E, the right portion of the aperture of the ring.
F, the left portion of the aperture of the ring.
G G G, the portion of the peritoneum which lines the internal surface of the abdominal muscles.

From these figures we see, that if the intestine, in its return into the abdomen, had been push'd to the side of the right part of the ring, there would have been no strangulation occasion'd by the bridle; and this is probably the course the intestine took every time the hernia returned.

But in the last accident, the surgeon, in returning the intestine, push'd it towards the left part of the ring, which produc'd the internal strangulation that prov'd mortal.

MEMOIR XXIV. *By M. DE LAUNAY.*

An elastic Truss for Hernias, presented to the Academy.

PLATE VIII. Fig. 1. A A A A A, an elastic steel girdle, forming a kind of oval, whose extremities come to join and cross each other upon the cushion B. This girdle is fitted round the body, and takes its form exactly without confining it in any part.

B B B, the cushion view'd on the convex side, which presses on the ring. Its thickness, which is only two lines, is sufficient effectually to retain the descent in all kinds of bodily exercises.

C C C, the strap pierced with several holes, in order to render the girdle tighter or slacker.

The small strings, placed cross-wise, serve to retain the furniture of the steel girdle, and facilitate its change when necessary.

Fig. 2. Represents the truss opened by two hands A and C, in order to shew how much its elasticity can yield to extension.

B D, the distance between the extremities of the truss open'd, which having at once a great deal of elasticity and pliancy, is exactly and commodiously fitted to the shape of the body.

E E E, the strap design'd to pass into the loop F, and fixed to the hook placed externally at the center of the cushion.

G G G, the furniture fixed on the girdle of the truss, and view'd on that side which is applied to the body.

Fig. 3. A A A, the truss without furniture.

B, the second plate, whose tail enters and passes into the first plate C, has such a proportion and distance

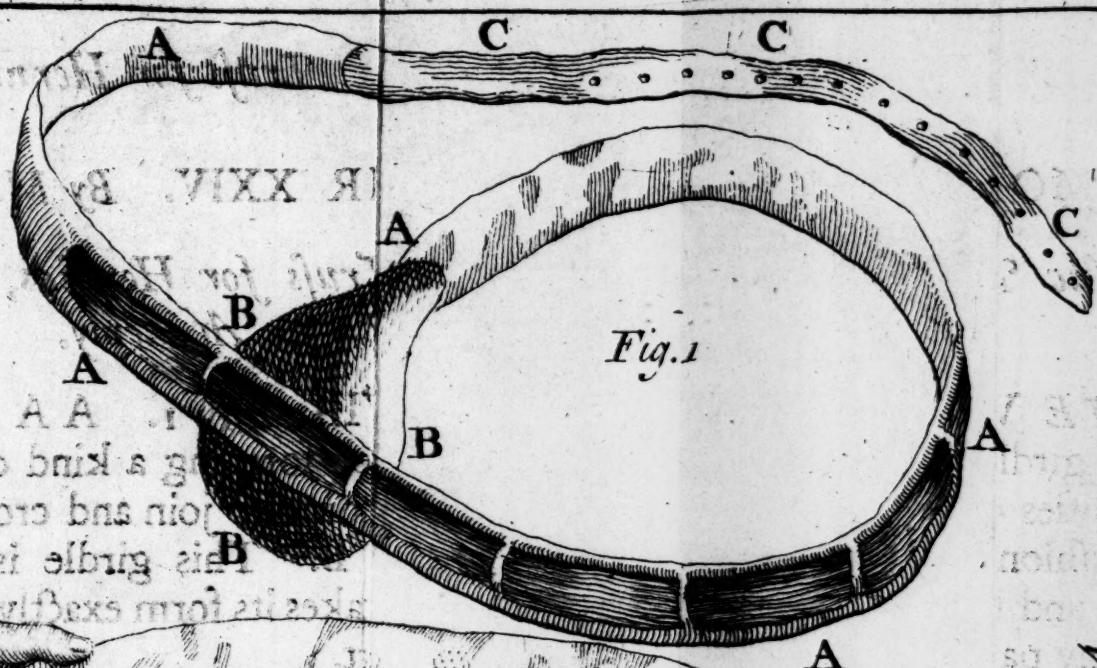


Fig. 4.

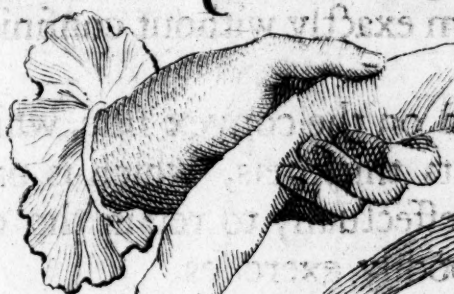
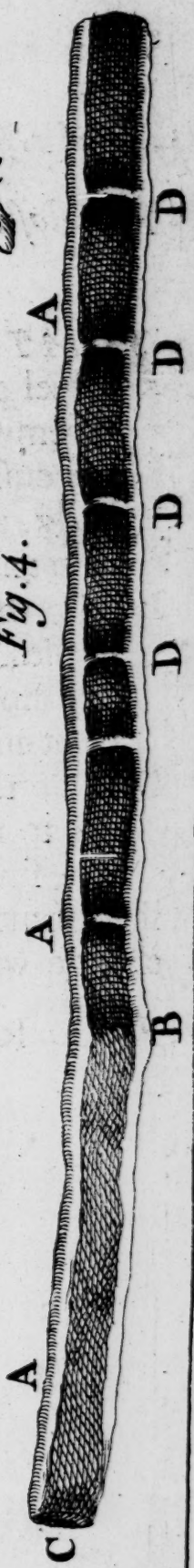


Fig. 2.

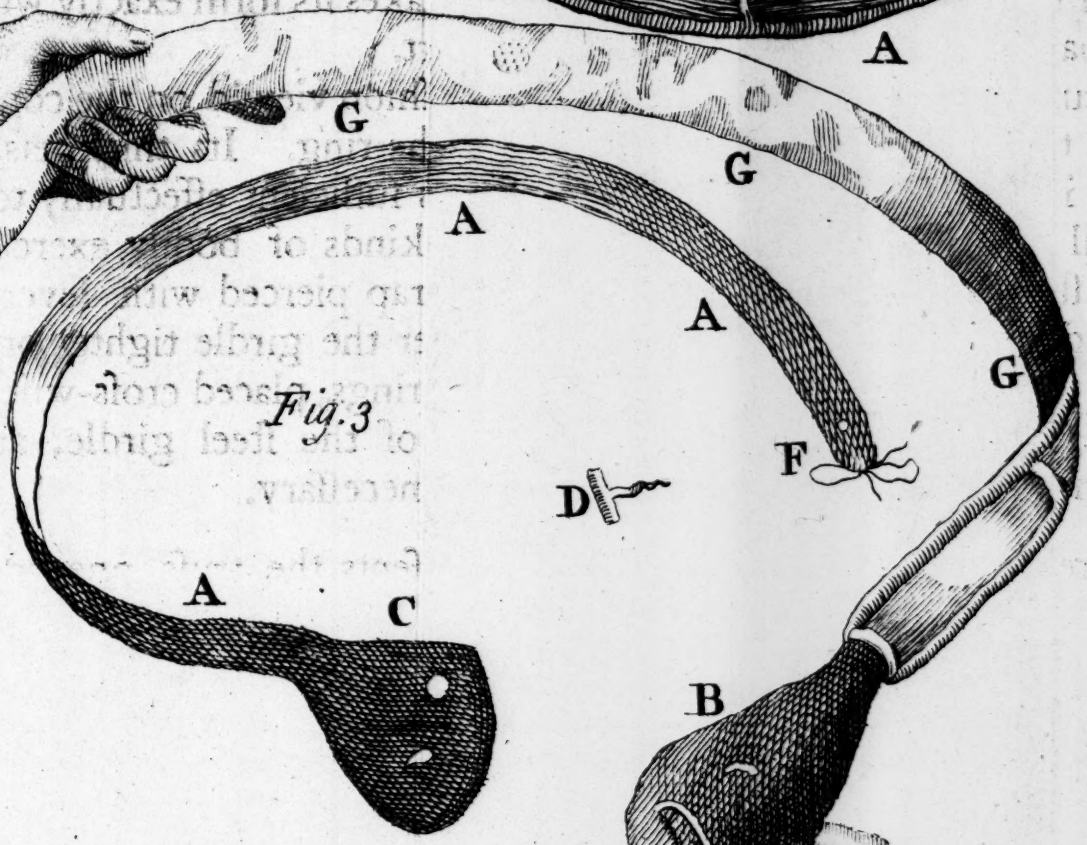
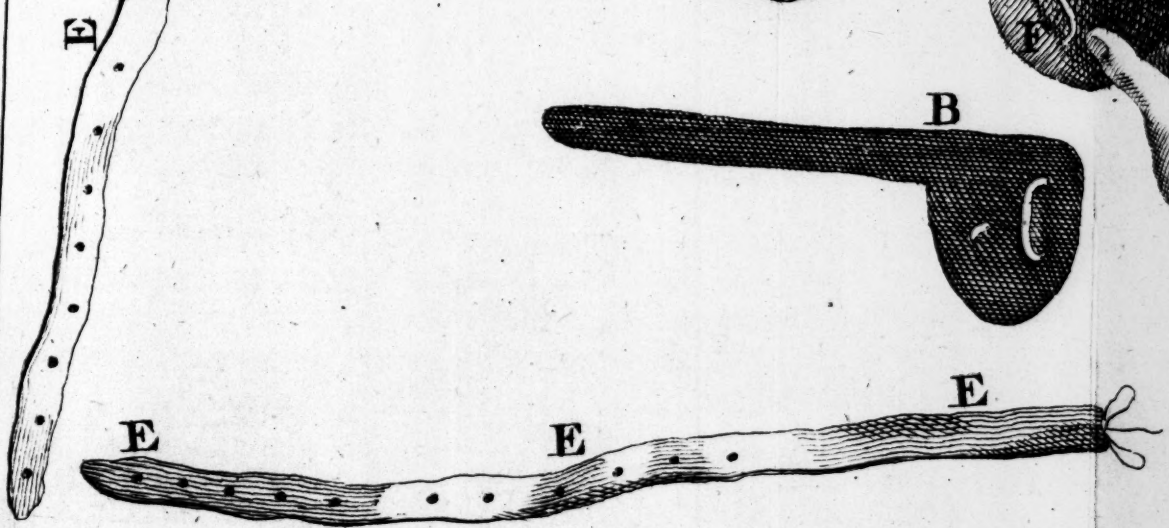
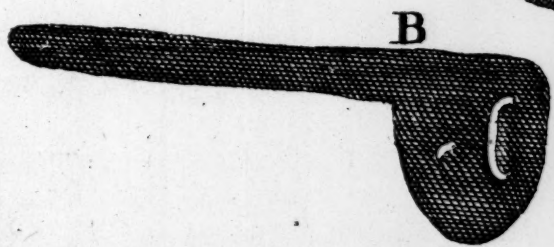


Fig. 3.



distance as is necessary to press on both rings, in the case of two descents through these rings. This plate is fix'd by the pin D, which enters and remains in the screw hole made in the first plate, which forms a truss with two sides.

E E E, the strap, at the superior end of which there is, instead of the nail generally used, a double brass wire, which passes into the two small holes at the extremity of the truss. This wire more surely retains the strap than a riveted nail, which is subject to slip. This brass wire is also very commodious for changing the strap when it is worn.

Fig. 4. A A A, the furniture fitted and applied to the truss.

B, a slit through which we pass the strap, which goes through another slit, at the end C.

D D D D, strings which secure the furniture round the truss, and render it easily changed when necessity requires it, keeping still the same truss, which is always equally useful and commodious, and has all the qualities that can recommend it to persons who use trusses, either for the sake of necessity or prevention.

MEMOIR XXV. By M. DE GARENGEOT.

On several singular Hernias.

Hernias almost never happen, except in those parts of the circumference of the abdomen

Remarks on the parts where hernias happen.

which are destitute of muscular fibres, especially in those where nature has formed spaces, or vacuities for the passage of vessels, or some other parts; and when the floating parts included in the cavity of the abdomen are violently push'd towards these places, destitute of muscular fibres, they do not find a resistance capable of opposing their effort.

The places, as is sufficiently known, which most commonly yield to the effort of these parts, are the rings of the external oblique muscles, the crural arches, the navel, the linea alba, and the lateral parts of the abdomen. We shall now shew that hernias happen in all these places, only because they are either naturally or accidentally deprived of muscular fibres.

1. The places where hernias happen most frequently, especially to men, are the sides, at the superior part of the pubes, where the rings of the external oblique muscles are situated. Each of these rings is formed of two appendages, or pillars of the inferiour aponeurosis of this muscle, whose separation leaves an almost oval aperture, destin'd to furnish a passage to the cord of the spermatic vessels in men, and to the ligamentum rotundum, or round ligament, in women. These different parts pass through this aperture of the ring of the external oblique muscle, where there are no fleshy fibres, but only the peritoneum, the fat, and the skin, which make but a small resistance to the parts floating in the abdomen, when they are forcibly thrust towards this ring.

2. The

2. The crural arches are also places where hernias easily happen. Each of these arches is form'd by the ligament of *Poupart*, or of *Fallopins*, and gives passage to the tendons of the psoal and iliac muscles, and to the crural nerve, artery and vein. This passage is only possessed by an elongation of the cellular texture of the peritoneum, so that there are no muscular fibres to make a sufficient resistance to the violent impulse of the parts floating in the abdomen.

3. Hernias also frequently happen in the circumference of the umbilical ring. It is sufficiently known that the umbilical arteries and veins pass through this ring; but it is not with this, as with the other passages we have described; for the umbilical ring is closed by the cohesion of the peritoneum, the linea alba, and the skin, when the umbilical cord is tied, and forms with the umbilical vessels which terminate there, a kind of knot or cicatrix, which is very solid, and cannot furnish a passage to the parts which present themselves, except in infants, when this cicatrix is as yet very tender, or when it has suffered great extensions in some disorders. But the parts adjacent to this knot make but small resistance; because, as they are very slender, and as there are no muscular fibres, the epiploon and intestines easily break the weak aponeurosis which surrounds that knot.

4. Hernias sometimes happen in that part of the linea alba which extends from the *cartilago xiphoides* to the circumference of the navel, and which forms a kind of aponeurotic band, destitute of muscular fibres, and about an inch broad; for tho' this band is naturally of a very close texture, yet it is relax'd by the considerable distensions it suffers in dropsies, and by the efforts to which it is exposed in violent vomitings; so that on such occasions it is easily broken by the internal parts.

The

The other part of the *linea alba*, which extends from a fingers breadth below the navel to the pubes, is also expos'd to hernias, which however do not often happen, except when, during gestation, the *musculi recti* have suffered too great a separation. These muscles are indeed sometimes so separated, that there is a space of three finger-breadths left between them, destitute of muscular fibres. The *linea alba* which unites them, and is naturally very compact, is, in these cases, greatly extended and weaken'd. The *musculi recti* only resuming a part of their tone after delivery, always leave a great distance between them, which in this place facilitates the falling out of the parts floating in the abdomen, and there is a hernia there form'd, which augments the more easily, because the whole intestines tend towards that part, and come out in so large a quantity, with almost the whole mesentery, that a kind of eventration happens. Of these, among others, I have seen one so considerable, that it resembled a second abdomen, and descended to the middle of the thighs.

M. de la Peyronie has given the Academy a detail of two hernias of this kind, which were still more considerable. These the Academy will afterwards communicate to the public, with the species of truss, which M. de la Peyronie used to contain so large hernias.

5. It is sufficiently known, that hernias also happen in the lateral parts of the sides, and that they are distinguish'd from these already mention'd, by the name of *ventral* hernias. But these do not often happen, except when some wound or abscess have pierced the abdominal muscles, or when these muscles have suffer'd some great distensions, occasioned by gestations or dropsies of that kind called *ascites*. In these last circumstances, their fleshy fibres separate from each other, are collected in-

to

to bundles, and leave some intervals, through which the floating parts of the abdomen escape. The peritoneum, which is then easily elongated, comes out with these parts, and furnishes a sack or bag for them. In this respect, the hernias form'd in this manner, differ from those occasioned by wounds or abscesses, in which the peritoneum has been pierced, and has not been reunited; as also from umbilical hernias, all which want a sack.

Besides these different places where the most common hernias are form'd, there are also others, in which these disorders also sometimes happen. But these have hitherto been but little adverted to, or at least authors have said but little concerning them. I shall therefore relate some observations concerning these extraordinary and little known hernias, but I must at the same time remark, that these disorders only happen in these places, because there are no muscular fibres capable of retaining the parts.

Hernias of the stomach.

The first of these places where I and my brother surgeons have seen hernias of the stomach, is at the superior part of the linea alba, immediately below the xiphoide cartilage. Now this part, like all the rest of the linea alba, is purely aponeurotic, and consequently entirely destitute of fleshy fibres. Besides, the aponeurosis is broader and thinner here than elsewhere, so that the rarity of hernias happening in this place, can only be ascribed to the ordinary situation of the body, which gives the floating parts of the abdomen such a tendency, as hinders them from making any considerable effort on this part.

A young surgeon, who design'd to embark for *America*, wanted to learn to dance before his departure. In the heat of this exercise his master desired him to hold his shoulders straight, and throw his

I. Observation, by the author, on a hernia of the stomach below the xiphoide cartilage.

arms

arms backwards, in order to present his breast the better. This he did with so much activity, that he felt a kind of crack and sudden dilaceration in the pit of the stomach. This dilaceration was not excessively painful, and the young man being full of fire, did not at first advert to it much. However, every time he repeated these exercises, he in the same place felt a somewhat painful twitching, and was at first very costive.

These symptoms as yet but beginning, did not divert him from his intended voyage. He embarked next month, and in thirty four days arrived in *America*. The constipation continued during the whole of this time; but what greatly augmented his disorder was, what we commonly call *sea-sickness*; for he vomited so frequently, that his aliments could not remain a quarter of an hour in the stomach. These excessive and almost continual vomitings reduced him to a very deplorable state; for besides the constipation, which lasted for two months, he entirely lost his appetite, his abdomen became extremely tense, he had lassitudes in all his members, inquietudes, agitations, and a continual watching.

Those in the ship with him were not surprized at his vomitings the first seven or eight days, because persons in their first voyage are often afflicted, during that time, with the same symptom; but when they saw that they were not discontinued, even after he was got ashore, they imagined his case depended on some other cause.

The patient neglected nothing he thought proper to afford him relief, but instead of reaping any benefit from his care, new symptoms were added to the former. There supervened frequent eructations, succeeded with a bitterness in the mouth, vomitings of a matter sometimes frothy, and sometimes bilious, a slow fever, weakness, an extreme emaciation, vapours, and, as it were, a weight upon his stomach,
accom-

accompanied with pains, which seem'd to arise from the point of the xiphoide cartilage.

Having to no purpose used simple purgatives, and the most irritating suppositories, he took an emetic. This remedy evacuated a great deal, both by vomit and stool, which greatly reliev'd the patient; since for near three months the evacuation by stool had been entirely suppressed. This advantage often induced him to have recourse to this remedy, which always afforded him relief; but as it only attack'd the symptom, and not the cause, its too frequent repetition brought on other misfortunes. His abdomen became more and more tense, and his respiration was extremely difficult. There now and then appear'd, near the xiphoide cartilage, a soft tumor, which was easily distinguished from the inflation of the abdomen, and which was sometimes as large as a person's fist.

A state so deplorable determined the patient to return to *France*, and being arrived at *Nantes*, he consulted several physicians and surgeons of that town, who not knowing the cause of these disorders, prescribed remedies which proved ineffectual. Then he applied to quacks, who in vain tormented him with a great many different remedies.

After all these tryals, which were injurious to him, he came to *Paris*, in order to consult the most celebrated physicians and surgeons; but they not comprehending his disorder, he reap'd no advantage from their counsels.

The patient being reduced to the most deplorable state, after having for two years taken a prodigious quantity of remedies, and despairing of a cure, resolved to retire to his own country. However, he was desirous, before his departure, to be present at a course of operations which I went thro' in *April* 1740. In one of my lectures I spoke of hernias of the stomach, which have not as yet been distinct-

distinctly described by any author *. I enumerated the symptoms of this disorder, such as I had observed them in two hernias of this kind which I had treated, and such as they had been observed by my fellow surgeons, Messrs *Petit*, *Andouille*, and *Arnaud*, who have also had several opportunities of seeing this disorder.

The young surgeon, in my recital of the symptoms, found an exact representation of his own disease, and forthwith went home to prepare a truss nearly similar to that I had mentioned in my lecture. This truss had so great success, that an hour after its application, the patient went naturally to stool, slept all night, and all the other symptoms I have mention'd, disappeared.

Some days after, the patient came to acquaint me with this happy change. On examining the part where he had applied his truss, I found a separation of the *musculi recti*, near the xiphoide cartilage. The hernia of the stomach appeared again upon the smallest motion.

In this truss I observed some faults, which the surgeon perfectly corrected. I ordered him, however, to consult M. *Arnaud*, who found the last truss made in a proper manner. In a word, the hernia appeared no more, and the separation of the *musculi recti* is so lessen'd, that there is room to hope for a radical cure.

In the same region of another patient, I observed a hernia of the stomach, situated precisely at the side of the xiphoide cartilage. There are two triangular spaces, one on each side of this cartilage, destin'd for the passage of several blood-vessels distributed to the pectoral muscle, and

Triangular spaces, at the sides of the xiphoide cartilage, thro' which the stomach may form hernias.

* *Camerarius*, Decad. 10. No. 14. speaks of a hernia of this kind, but has not describ'd it. There is also an example of it hinted at in *Renaume's* treatise of hernias, page 85.

and other external parts. These spaces are on one side terminated by the edges of the sheath of the *musculi recti*, which is extremely thin; because in that place, it is not, as elsewhere, form'd by the concurrence of the aponeuroses of the oblique and transverse muscles, but only by the aponeuroses of the external oblique muscle. Thus 'tis easy to conceive that a hernia may readily be form'd in those places, where being destitute of muscular fibres, they are only cover'd with fat and skin, and where the aponeurosis we have mentioned can make but a small resistance to the floating parts, which make an effort towards that place.

A woman who in a confin'd posture wanted to lift a child in order to change its place, made an effort which produced a sudden and very intense pain, in the left lateral part of the xiphoid cartilage, and another at the place where the third false rib is united to the second. The rib was detach'd, and form'd a tumor on the skin. The woman continued immoveable by the violence of the pain, thought she had broke something, and concluded she must soon die if not speedily reliev'd.

II. Observation, by the author, on a hernia of the stomach on the left side of the xiphoid cartilage.

I being sent for, the patient could hardly speak to me, on account of her pain. I examined the parts where she felt the pain, and found, at the left side of the xiphoid cartilage, a tumor of the bulk and figure of an olive. I at first suspected, from the situation of this tumor, and the manner in which it happen'd, that it was a hernia of the stomach. I was confirm'd in my opinion, when, upon touching it, I felt a certain elastic softness, such as that of a small bag full of air.

Being persuaded of this, I attempted the reduction, for which purpose I put a cushion under her hips, and another under her shoulders, in order

to relax the abdominal muscles, which were very very tense. I, with my thumb and fore-finger, pinch'd the tumor as near to its root as possible, in order to compress it near the ribs, and push it inwards, by moving a little from one side to another, in order to facilitate the return of the part which had come out. By these gentle motions, I so distinctly felt the part re-enter, that I had no reason to doubt of its being a true ventral hernia.

There is a species of hernia which I take to be still less known than those already mentioned, and which is an intestinal hernia happening in the vagina.

Intestinal hernia
in the vagina.

The vacuity form'd by the vagina in women who have born many children, may facilitate the production of an hernia, even in the sides of the vagina. These sides being overstretched in delivery, and continually moisten'd by the humours convey'd to them, are sometimes extended and relax'd to such a degree, that the few muscular fibres, which enter their composition, are separated, and collected into bundles opposite to the intervals which these collections of fibres leave between them, there only remain the membranous parts of the vagina, which are not capable of making a great resistance. For this reason it has sometimes happen'd, that the intestine has broken these vaginal membranes, and produced an hernia, which is first discover'd in the vagina itself, and afterwards between the labia pudendi.

In the beginning of the year 1736, I was call'd

III. Observation,
by the author, on
an hernia of the
intestine between
the labia pudendi.

to see a Skinner's wife, who imagin'd that she had a descent of the uterus. This woman had been pregnant five times, and at each time bore a large child. A month after her last delivery, she made an effort in helping a porter to get his burden on his back. She at that time felt a disorder in her abdomen, and an intense pain in her
va-

vagina, which she thought was fill'd with something. She consulted her midwife, who told her that it was a kind of descent of the uterus, and that she ought to consult her surgeon. But she neglected this advice, and went about her business as usual. The disorder augmented to such a degree, that it appeared between the labia, and came a finger-breadth without them. The patient now and then felt colical pains, which began in that part, twitchings of the stomach, and cardialgias, neither could she make water, except when lying on her back.

After I received this account, I examin'd her, and perceived a whitish tumor, which not only possessed the vagina, but also came without the labia, though in such a manner as to permit the introduction of the finger between it and the inferior part of the vagina. When I had passed my finger beyond the tumor, I touch'd the orifice of the uterus almost in its natural situation, whence I concluded that this organ did not in the least contribute to the present disorder; and as I could not make this scrutiny without pressing the tumor, I perceived that its bulk was diminish'd by one half. This change which happen'd to the tumor, made me suspect that the disorder was a descent of the intestine. As I took this to be the case, I order'd the patient to be laid in bed, and gently handled this soft tumor, which returned, as it were, through the superior right lateral part of the vagina, which, after this reduction, I found lax, slender, and, as it were, forming a kind of vacuity.

To convince myself more effectually of this intestinal hernia, of which I had never heard, and which, so far as I know, no author has describ'd, I order'd the patient to walk, and cough strongly. These motions made the tumor forthwith appear again, which entirely convinced me that it was an hernia. I reduc'd it, and order'd the patient to

keep her bed till I had made a pessary proper for retaining the intestine in its place.

I made one of an oval figure, which only succeeded the first day; for next day the patient had intense pains, with a considerable twitching in her stomach. She had also vomitings and eructations, which determined me to remove the pessary, which I found very much displac'd. I also perceived that the intestine was again come out a little, and had slip't between the pessary and the pubes, where it was compressed.

In order the more effectually to contain this descent, I made another pessary almost of the same bulk with the former, but of the shape of a bung. I pierced it in the middle for the commodious discharge of the urine, and secur'd it by two strings, without which precaution, it could not have been easily extracted in order to change it. This pessary so exactly retain'd the descent, that the patient has never since been incommoded by it.

I communicated this observation to M. *Arnaud*, who told me, that he had seen hernias of this kind, and that the pessary in form of a bung, was the method which had also succeeded perfectly with him.

We now come to consider a species of hernia, so little known, that it has not appeared possible to a great many anatomists; and this is the hernia form'd through the foramen ovale.

Intestinal hernias
through the oval
holes of the os
pubis.

This hole, which is closed up by a ligamentous membrane, and the two muscles called *obturatores*, does not seem capable of affording a passage to the parts floating in the abdomen. However, when we dissect these parts with attention, we may observe that this hole is not entirely closed up, but leaves at its superior edge, an oblique vacuity, known by the name of the sinuosity of the ischium, for the passage of some nerves, arteries, and veins.

Now,

Now, 'tis through this place, which is of a considerable extent, and destitute not only of fleshy fibres, but also of the ligamentous membrane, that the intestines may fall, and gradually form an hernia, which sometimes appears very sensibly on the external parts, as we shall see by the following examples.

In 1733, when in *Normandy*, I was called to the relief of a woman who was delivered the night before. The placenta remain'd in the uterus, and the umbilical cord broke immediately after the delivery. The patient labour'd under a considerable fever, breath'd with a great deal of difficulty, and had an intermittent pulse. The step which appear'd to me most necessary, was speedily to extract the placenta. When I introduc'd my hand into the vagina, which appeared to be more than half a foot in length, and of a large circumference, I found several membranous and very large foldings, which the midwife had vellicated and twitched, because she took them for the placenta. I advanced my hand to the orifice of the uterus, and found that it was very much inflated, and even almost clos'd. But by successively introducing my fingers into it, I easily dilated it, and entered into the cavity of the uterus, which was already contracted. I distinguish'd the placenta, and laying hold of its edge, I disengag'd and extracted it with ease.

IV. Observation, by the author, on an intestinal hernia through the foramen ovale.

Four days after, the woman found herself so well that she thought herself in a condition to get out of bed and walk; but as she was precipitately descending three or four steps of a stair, she made a false step, had a severe fall on her buttocks, and instantly felt a very intense pain in the top of the right thigh, near the lip of the pudendum. She was instantly put to bed, and about half an hour

after, was seiz'd with so considerable a vomiting, that nothing could remain in her stomach.

On the third day of these vomitings, the matter thrown up by the patient had a very ill smell, and the midwife thinking that some portion of the placenta might produce this symptom, sent for me.

As soon as I saw the fæces mix'd with a frothy and bilious matter, I suspected an iliac passion, or an hernia with strangulation, or some other obstruction in the intestinal canal. I examined the several parts where descents are commonly form'd, but could not discover any. In this case, which was so much the more perplexing, because there was neither fever nor tension of the abdomen, I still suspecting some hernia, ask'd the patient whether, when she fell, she perceived any extraordinary motion in her abdomen, whether the vomiting soon succeeded the fall, whether it was not preceded by a colic, and lastly, whether the pain always began in a fix'd part of the abdomen, before it spread farther, and terminated in that part.

She told me that she had had a severe fall on her right buttock, that she forthwith felt a displacement in the lower part of the abdomen, and at the same time a pain in the inner side of the right thigh; that half an hour after she was laid in bed, she felt colical pains, which seem'd to proceed from the right groin; that the vomiting appeared immediately after the first colical pain; and that both these symptoms had since continued, as well as the pain of the thigh, which was augmented every time she cough'd.

Having got this account, I wanted to see in what state the thigh was; and as I then recollected the two hernias through the foramen ovale, of which the deceased *M. Arnaud de Ronfil* gave me a short description about 21 years ago, and as I also remember'd two other similar hernias found two
years

years after in a subject which he dissected, and presented to the royal academy, I had some suspicions that I might find the same disorder here. My conjectures were very soon confirm'd; for in the examination I made of the right thigh, I found, on its superior and internal part, a longitudinal tumor prominent to the height of two finger-breadths, beginning a finger-breadth from the pudendum, whence it extended itself almost to the middle of the thigh; that is to say, it was five or six inches long.

When I touch'd this tumor, the patient gave a violent shriek, and said she felt an inexpressible pain in it. At that very instant, however, I discover'd that there was no extravasated fluid in the tumor, and that it included a soft and elastic body; so that, joining this sign to the symptoms, their origin and gradation, and the other circumstances I have mentioned, I concluded that the intestine had passed through the sinuosity of the foramen ovale at the part before specified, and had enlarg'd the natural passage, by disengaging a little the ligamentous membrane, and the muscoli obturatores, which in some measure closed up that hole.

Though the disorder was then very well known to me, yet the cure of it appeared difficult. *M. Arnaud* had indeed told me, when speaking of the two hernias of this kind which I have mentioned, that he had reduc'd them, and retain'd them by trusses. But he did not explain the manner in which he made the reduction. However, I forthwith resolved to try this method, because incisions seem'd to be attended with great difficulties.

To render this operation the more easy, I rais'd the patient's buttocks, and put a doubled bolster under them, and laid a pillow below her head. This situation, in which the buttocks were higher than the rest of her body, and her head supported

so as to incline a little forwards, appeared the most favourable to determine the intestines towards the diaphragm, and to relax the muscles of the internal part of the thigh.

The knees being raised, and the thighs separated, I gently embrocated the tumor with some oil I found in the house. By handling it dexterously, and gently pushing it from below upwards with the palm of my hand at different times, I perceived that the intestine returned, and that the tumor gradually disappear'd. At last, amidst all these motions, the patient instantaneously felt a kind of rumbling in her abdomen, which, as she said, forthwith render'd her entirely easy. The tumor totally disappeared, the colic and the vomitings ceased, and, about a quarter of an hour after, she went to stool.

So happy a success, in a disorder which I have not seen mentioned by any author, except a modern writer, who only speaks of it with a view to call it in question *, gave me a great deal of satisfaction. I forthwith examined the place where the tumor appeared before the reduction, and through the skin and fat perceived a vacuity, or depression, between the two anterior heads of the musculus triceps, which gave me the hint of the following dressing.

I forthwith took soft and worn linen rags, tore them into small portions, and included them in a larger one, in order to compose a soft pledget. I dipt this pledget in the yolks and whites of eggs, beaten together, and mixt with aqua vitæ. I then made this cushion somewhat long and cylindrical, and applied it to the part of the vacuity I have mentioned. I covered this pledget with triangular compresses, dipt in aqua vitæ, and secur'd the whole by a bandage with two heads, which I pass'd round the body and the superior part of the thigh, in order to form the *spica* on the dressing. I prescribed her a clyster every day,

* *Traité des hernies, par Reneaume de la Garanne, médecin de Paris, p. 95.*

day, and ordered her to keep her bed, to which she unwillingly consented, because she thought that precaution a piece of delicacy unbecoming a person of her condition.

On the fifth day this woman oblig'd me to remove the dressing. She was in good health, and I had the satisfaction to see the triceps musculus united to such a degree, that there no longer remain'd any vacuity. A long and moderately thick compress, secur'd by the bandage I have described, was the dressing I afterwards used, during the month I stay'd in the country. I removed this dressing every six days, and the patient, who during that time followed her usual business, never felt any incommodity.

The two first hernias of this kind I knew, are those which I have ascribed to the deceased M. *Arnaud*; but as he has not printed an account of them, they have remained in oblivion, and perhaps I should never have recollected his narration, if the hernia, whose history I have related, had not furnish'd me with an occasion of doing so.

I afterwards heard of the two hernias through the foramen ovale, the history of which M. *du Verney* communicated to the Royal Academy of Sciences twelve or fifteen years ago, and which I here mention, because it has not been printed. He found in the same pelvis of a woman whom he was dissecting, two portions of intestine, which had depressed the peritoneum to the superior parts of the two oval holes, and had form'd two tumors, each as large as an egg, between the interior heads of the triceps musculus on each side; and as these intestinal tumors were not as yet far enough advanced to raise an eminence in the skin and fat which cover'd them, there was no external protuberance observable.

Observation by
M. *du Verney*, on
the same subject.

When

When in 1734 I read the history of the hernia through the foramen ovale, which I have before described, M. *Arnaud*, on that occasion, said he had seen several of them, especially one pretty long, like that I have described, and another situated somewhat higher, exactly round, and blackish; and that he had reduced them all, and contain'd them with trusses.

Observation, by
M. *Arnaud*, on
the same subject.

M. *Garé* has since given me an account of an hernia of the same kind. He told me that it was exactly round, and situated at the inferior external side of one of the labia pudendi; but that he only saw the patient once.

Observation, by
M. *Garé*, on the
same subject.

M. *Malaval* has also furnished us with a very remarkable example of a hernia through the foramen ovale. He says, that last summer he saw a gentlewoman who had a round and unequal tumor on the superior internal part of her left thigh. The symptoms with which this tumor was accompanied made him suspect a descent. As soon as he had seen and touched the tumor, he knew that it was a hernia through the foramen ovale. He attempted to reduce it, and actually return'd the intestine, but there still remained something in the herniary sack, which he could not reduce, and which he suspected to be the epiploon; after having reduced this intestine several times on different days, without being able to reduce the epiploon, he advised the patient to send for M. *Arnaud*, who, as soon as he came, found it to be a hernia through the foramen ovale. Notwithstanding this surgeon's dexterity in treating hernias, he could only reduce the intestine as M. *Malaval* had done; for which reason he told the patient, that it was necessary to perform the operation for amputating the epiploon. She consenting,

M. *Ar-*

Observation, by
M. *Malaval*, on
the same subject.

M. *Arnaud* proceeded thus. He began by making the reduction of the intestines, after which he made an incision on the tumor, only through the skin and fat, in order to lay the herniary sack bare. When he had discover'd this sack, he open'd it, and found a portion of the epiploon as large as a nut. He cut it in the part where it passes between the anterior heads of the triceps muscle. He afterwards cut a portion of the sack, and depressed the rest between the heads of that muscle. He used dossils for the wound, dressed it in the usual manner, and the operation succeeded perfectly.

Another example of an hernia through the foramen ovale, which I have to propose, appears so much the more singular, because, so far as I know, it is the only instance of this kind that has happened to a man.

Observation, by
the author, on the
same subject.

A sadler in *Sepulchre's* street had a tumor in his right thigh, near the perineum. This disorder was at first taken for an abscess, and cataplasms accordingly prescribed to bring it to a suppuration.

On examining the effect of these cataplasms, and pressing the tumor with the fingers, in order to feel whether there was pus in it, the intestine, which really formed this tumor, re-entered all on a sudden. An event so unexpected merited the attention of the skilful surgeons who saw the patient, and made them conclude, after a serious examination, that the tumor which thus disappeared, was an hernia through the foramen ovale; and for a proper truss, they forthwith recommended him to M. *Sorraiz*, who told me, that he discover'd the place where the hernia was.

M. *Hommel*, demonstrator of anatomy in the amphitheater of *Strasburg*, shew'd me a piece prepared, which comprehended the portion of the peritoneum, that corresponds to the oval holes; and

at

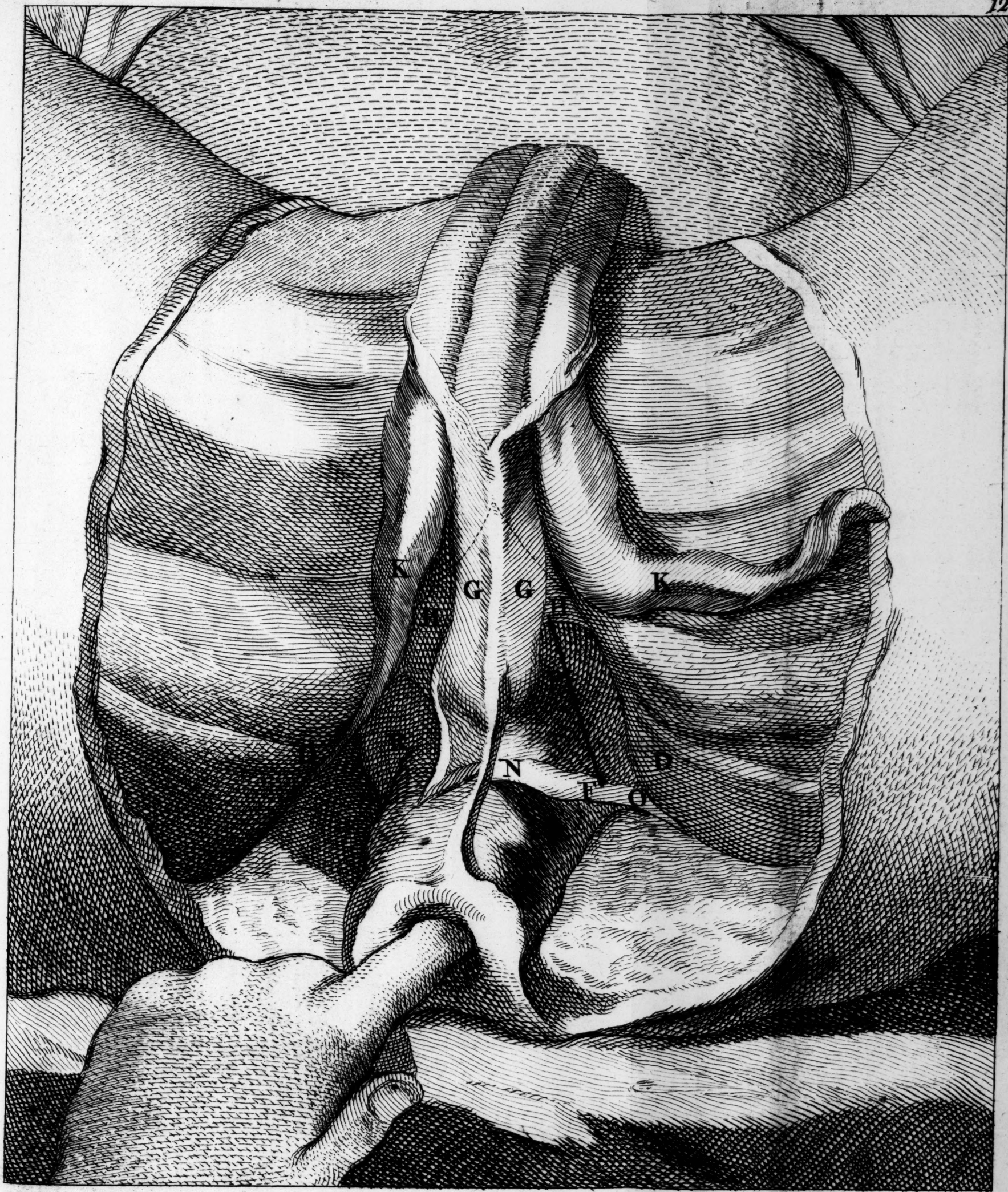
at the place of each hole, the peritoneum was depressed, and formed two sacks, each capable of containing a large pigeon's egg.

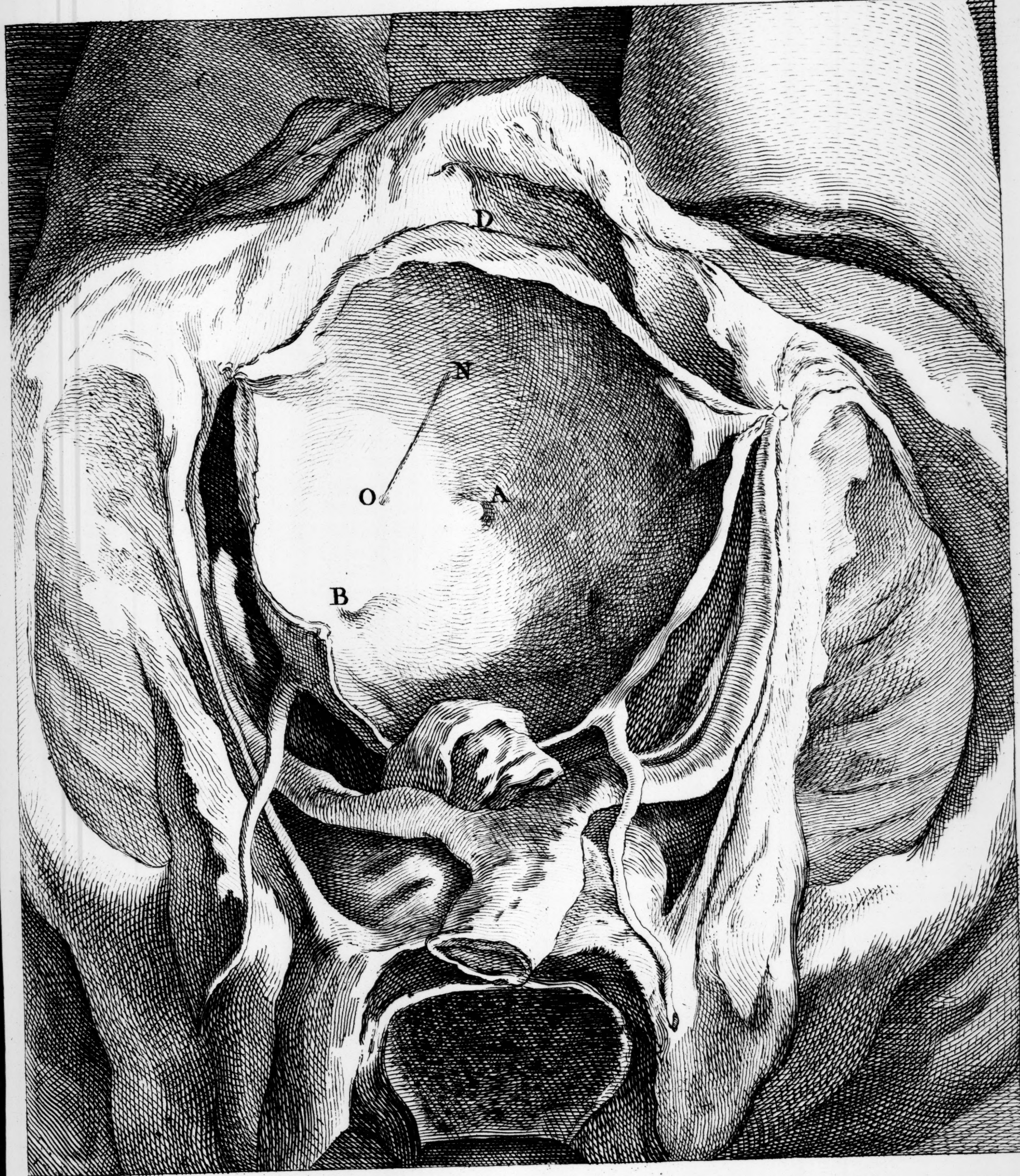
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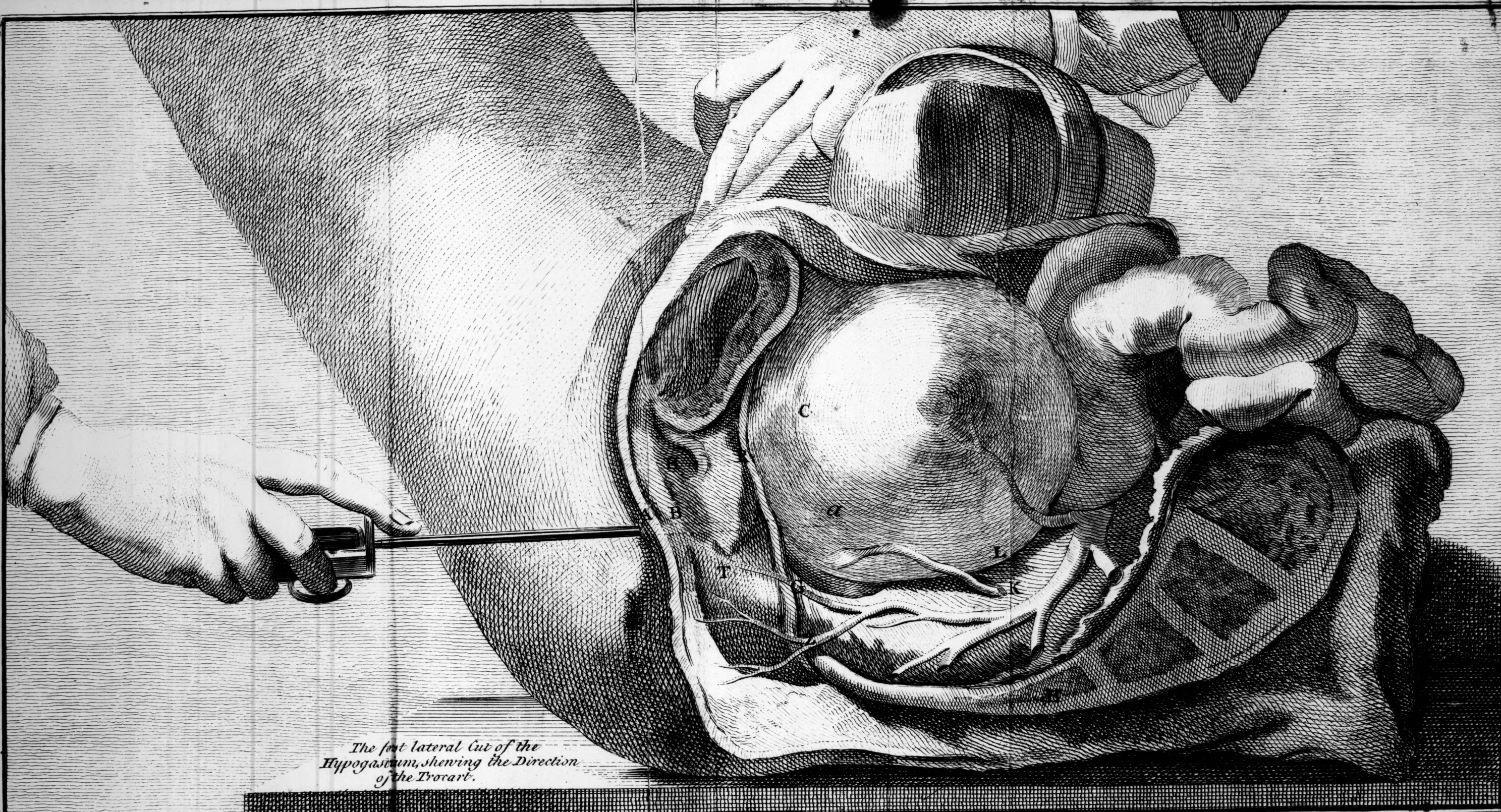
MEMOIR XXVI. *By M. FOUBERT.**On an Abscess of the Lungs.*

A Man of 30 years of age, had an habitual spitting of blood, after a defluxion in the breast, of which he was ill cured about three years before. This spitting of blood was accompanied with a frequent cough, and a fever, more or less violent, according to the patient's regimen. These symptoms could not be removed by the best chosen remedies. At last the patient expectorated pus, and fell into a consumption. This was his situation when, about two months before his death, on examining all the external parts of his breast, I observed, that when he cough'd, there was a tumor as large as a small hen's egg, formed between the xiphoide cartilage, and the cartilaginous edge of the last of the true ribs and of the two first of the false. I observed that, in compressing this tumor with my hand, when the patient cough'd, my hand was pushed as it were by some part that seem'd to form an hernia, which made some practitioners who had seen the patient, imagine that it was really a hernia of the stomach. However, I could hardly believe it to be such, because I always perceived a kind of undulation, which made me suspect that it was rather a humoral tumor produced by a supuration of the lungs. This suspicion to me appeared so well grounded, that I would have open'd the tumor, if there had not been different opinions concerning the disorder, and if the patient had not been so exhausted as to render the operation hazardous. A flux supervened, and soon put an end to his life. I made the aperture of the body, and cautiously open'd the right side of the breast, separating four or five ribs of the sternum, without touch-

touching the diaphragm and mediastinum. The lungs in this side were adherent on all their circumference. I made several incisions in the substance of the lungs, where I found some parts in suppuration. Among others, I found a very considerable abscess just opposite to the part where the tumor appeared externally. It was situated on the diaphragm, and bounded on the left part by the mediastinum. I removed all the substance of the lungs in this place, and cleansed the diaphragm and mediastinum from all the portions of the lungs which had contracted an adherence to them. I then, with the fingers of my left hand, pushed the portion of the diaphragm, between the xiphoide cartilage, and the cartilaginous edge of the ribs before mention'd, by which means a tumor appeared externally on the same part it had done when the patient was alive. I conveyed the point of my bistory into the tumor which I had formed by my fingers, precisely between the cartilages of the true and false ribs, observing to conduct my instrument along the cartilage formed by the re-union of the last of the true, and two first of the false ribs. I easily entered the breast, and made an aperture sufficient to convey my finger into it. This observation brought to my mind some other cases where I have seen similar tumors in persons who have died of a suppuration of the lungs; and as it may happen that other patients may be in a better state than this now mentioned, we may open similar abscesses, and save the patients lives. I think the example I have related is sufficient to shew the possibility of the operation, and determine us to perform it, when we have any hopes of success.







*The first lateral Cut of the
Hypogastrium, shewing the Direction
of the Trocar.*

